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BEAM POWER TUBE

Useful at Frequencies up to 125 Mc

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:		
Voltage	6.3 ± 0.6	ac or dc volts
Current	0.9	amp
Transconductance (Approx.) for plate volts = 250, grid-No.2 volts = 250, grid-No.1 volts = −14	6000	μmhos
Mu-Factor, Grid No.2 to Grid No.1 for plate volts = 250, grid-No.2 volts = 250, and grid-No.1 volts = −20	8	
Direct Interelectrode Capacitances:		
Grid No.1 to plate°	0.2 max.	μμf
Grid No.1 to cathode & grid No.3, grid No.2, and heater	12	μμf
Plate to cathode & grid No.3, grid No.2, and heater	7	μμf

Mechanical:

Mounting Position	Any
Maximum Overall Length	5-3/4"
Seated Length	4-31/32" ± 5/32"
Maximum Diameter	2-1/16"
Weight (Approx.)	3 oz
Bulb	ST-16
Cap	Small (JETEC No.C1-1)
Base	Medium-Micanol-Shell Small 5-Pin (JETEC No.A5-11)
Basing Designation for BOTTOM VIEW	5AW

Pin 1 – Heater
Pin 2 – Grid No.2
Pin 3 – Grid No.1
Pin 4 – Cathode, Grid No.3
Pin 5 – Heater
Cap – Plate

AF POWER AMPLIFIER & MODULATOR – Class AB_1 ♦

Triode Connection--Grid No.2 Connected to Plate

Maximum Ratings, *Absolute Values:*

	CCS●	*ICAS*●●	
DC PLATE VOLTAGE	400 max.	400 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	125 max.	125 max.	ma
MAX.-SIGNAL DC PLATE PLUS GRID-No.2 INPUT*	50 max.	50 max.	watts
PLATE DISSIPATION PLUS GRID-No.2 INPUT*	25 max.	30 max.	watts

° With external shield JETEC No.312.

♦, ●, ●●, *: See next page.

← Indicates a change.

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	CCS●	ICAS●●	
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	135 max.	135 max.	volts
Heater positive with respect to cathode	135 max.	135 max.	volts

Typical Operation:⊕

	CCS●	ICAS●●	
Values are for 2 tubes			
DC Plate Voltage	400	400	volts
DC Grid-No.1 (Control-Grid) Voltage.	-45	-45	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage⊕⊕.	90	90	volts
→ Zero-Signal DC Plate Current .	64	64	ma
Max.-Signal DC Plate Current .	140	140	ma
Effective Load Resistance (Plate to Plate)	3000	3000	ohms
Max.-Signal Driving Power (Approx.).	0	0	watts
Max.-Signal Power Output (Approx.).	15	15	watts

Maximum Circuit Values (CCS or ICAS):

Grid-No.1-Circuit Resistance:○○		
With fixed bias.	0.1 max.	megohm
With cathode bias.	0.5 max.	megohm

AF POWER AMPLIFIER & MODULATOR - Class AB_1 ♦

Maximum Ratings, ***Absolute Values*****:**

	CCS●	ICAS●●	
DC PLATE VOLTAGE	600 max.	750 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE.	300 max.	300 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*.	120 max.	120 max.	ma
MAX.-SIGNAL DC PLATE INPUT*. .	60 max.	90 max.	watts
MAX.-SIGNAL GRID-No.2 INPUT* .	3.5 max.	3.5 max.	watts
PLATE DISSIPATION*	25 max.	30 max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	135 max.	135 max.	volts
Heater positive with respect to cathode	135 max.	135 max.	volts

♦ Subscript 1 indicates that grid-No.1 current does not flow during any part of the input cycle.

⊕ In class AB_1 service, the normal design limitation is the requirement that grid-No.1 current should not flow. For this reason, the typical operating values shown for both CCS and ICAS conditions are the same.

⊕⊕ The driver stage should be capable of supplying the No.1 grids of the class AB_1 stage with the specified driving voltage at low distortion.

●, ●●, *, ○○: See next page.

→ indicates a change.




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BEAM POWER TUBE

Typical Operation: ←

Values are for 2 tubes

	CCS●			ICAS●●	
DC Plate Voltage	400	500	600	750	volts
DC Grid-No.2 Voltage**	300	300	300	300	volts
DC Grid-No.1 (Control-Grid) Voltage:					
From fixed-bias source	-30	-32	-34	-35	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	60	64	68	70	volts
Zero-Signal DC Plate Current	56	44	36	30	ma
Max.-Signal DC Plate Current	143	141	139	139	ma
Zero-Signal DC Grid-No.2 Current	2	1	0.6	0.5	ma
Max.-Signal DC Grid-No.2 Current	16	15	15	16	ma
Effective Load Resistance (Plate to plate)	6800	8200	10000	12000	ohms
Max.-Signal Driving Power (Approx.)	0	0	0	0•	watts
Max.-Signal Power Output (Approx.)	36	46	56	72	watts

Maximum Circuit Values (CCS or ICAS): ←

Grid-No.1-Circuit Resistance:°°
With fixed bias . . . . 0.1 max. megohm
With cathode bias . . . . Not recommended

AF POWER AMPLIFIER & MODULATOR - Class AB_2#

Maximum Ratings, ***Absolute Values*****:**

	CCS●	ICAS●●	
DC PLATE VOLTAGE	600 max.	750 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	300 max.	300 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	120 max.	120 max.	ma
MAX.-SIGNAL PLATE INPUT*	60 max.	90 max.	watts
MAX.-SIGNAL GRID-No.2 INPUT*	3.5 max.	3.5 max.	watts
PLATE DISSIPATION*	25 max.	30 max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	135 max.	135 max.	volts
Heater positive with respect to cathode	135 max.	135 max.	volts

Subscript 2 indicates that the grid-No.1 current flows during some part of the input cycle.

* Averaged over any audio-frequency cycle of sine-wave form.

●,●●,**,°°: See next page.

←Indicates a change.

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► **Typical Operation:**

Values are for 2 tubes

	CCS●			ICAS●●	
DC Plate Voltage	400	500	600	750	volts
DC Grid-No.2 Voltage**	300	300	300	300	volts
DC Grid-No.1 (Control-Grid) Voltage: *From fixed-bias source*	-28	-30	-32	-35	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	80	86	90	96	volts
Zero-Signal DC Plate Current	72	60	48	30	ma
Max.-Signal DC Plate Current	240	240	200	240	ma
Zero-Signal DC Grid-No.2 Current	2	0.9	0.7	0.5	ma
Max.-Signal DC Grid-No.2 Current	20	20	18	20	ma
Effective Load Resistance (Plate to plate)	3700	4600	6900	7300	ohms
Max.-Signal Driving Power (Approx.)♦♦	0.2	0.2	0.1	0.2	watt
Max.-Signal Power Output (Approx.)▲	55	75	80	120	watts

► **Maximum Circuit Values (CCS or ICAS):**

Grid-No.1-Circuit Resistance:°°

With fixed bias	30000 max.	ohms
With cathode bias	Not recommended	

RF POWER AMPLIFIER-Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum Ratings, *Absolute Values:*

	CCS●	ICAS●●	
DC PLATE VOLTAGE	600 max.	750 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	300 max.	300 max.	volts
DC PLATE CURRENT	80 max.	90 max.	ma
PLATE INPUT	37.5 max.	45 max.	watts
GRID-No.2 INPUT	2.5 max.	2.5 max.	watts

** Preferably obtained from a separate source, or from the plate-voltage supply with a voltage divider.

♦♦ Driver stage should be capable of supplying the specified driving power at low distortion to the No.1 grids of the class AB_2 stage. The effective resistance per grid-No.1 circuit of the class AB_2 stage should be kept below 500 ohms and the effective impedance should not exceed 700 ohms at the highest response frequency.

▲ With zero-impedance driver and perfect regulation, plate-circuit distortion does not exceed 2%. In practice, the regulation of the plate-voltage, grid-No.2 voltage, and grid-No.1 voltage should not be greater than 5%, 5%, and 3%, respectively.

●, ●●, °°: See next page.

→ Indicates a change.



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BEAM POWER TUBE

2 1/16" MAX.

SMALL CAP
JETEC Nº
C1-1

5 3/4"
MAX

ST16 BULB

4 31/32"
± 5/32"

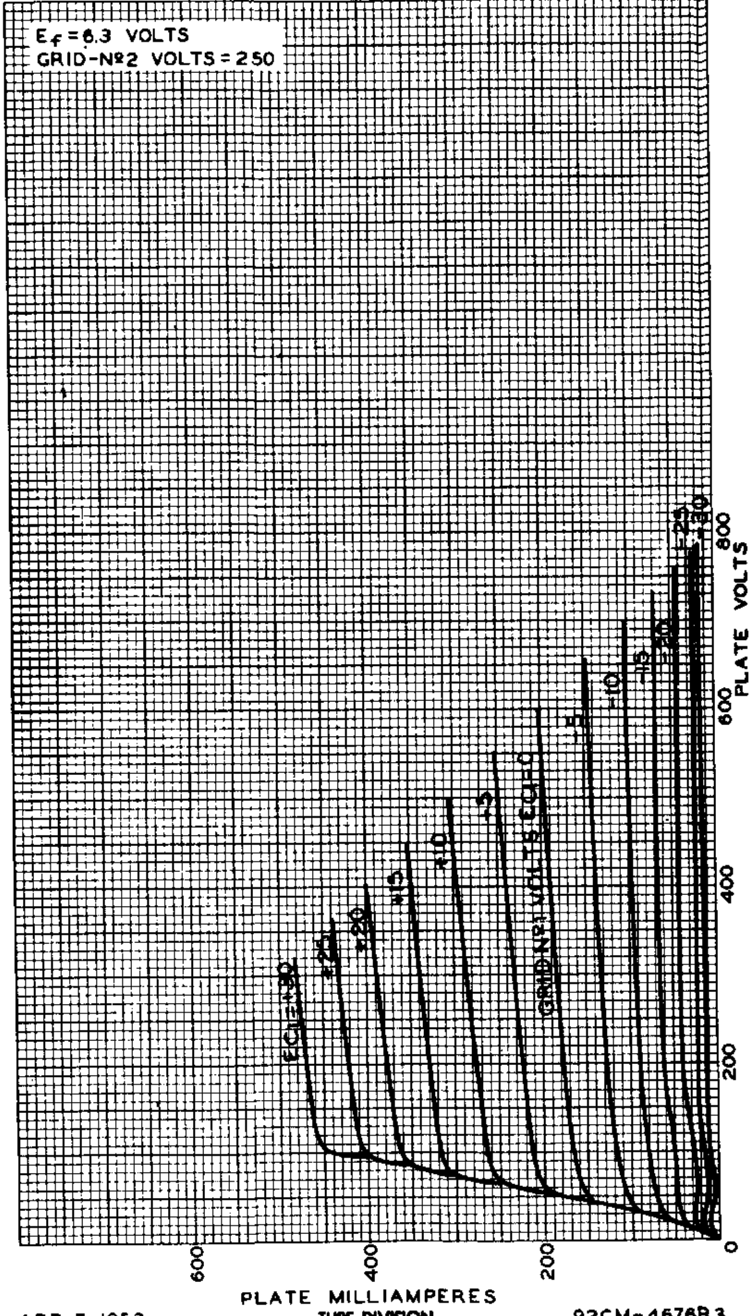
MEDIUM-SHELL
SMALL
5-PIN BASE
JETEC Nº
A5-11

92CM-4674R4

RCA

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AVERAGE PLATE CHARACTERISTICS



APR. 7, 1953

TUBE DIVISION

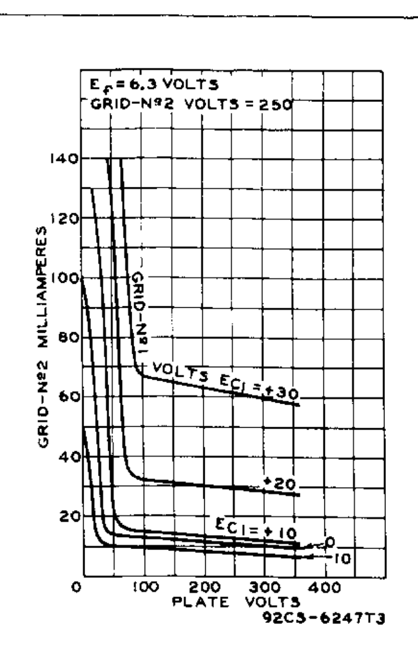
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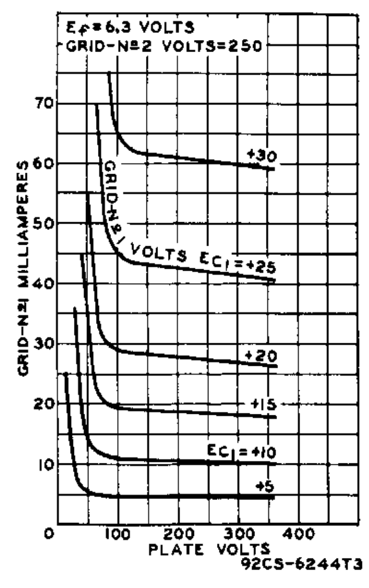
92CM-4676R3



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AVERAGE CHARACTERISTICS







RCA

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AVERAGE PLATE CHARACTERISTICS

E_f = 6.3 VOLTS
GRID-Nº2 VOLTS = 300

GRID-Nº1 VOLTS (E_{C1}) = +30, +25, +20, +15, +10, +5, 0, −5, −10, −15, −20, −25, −30, −35

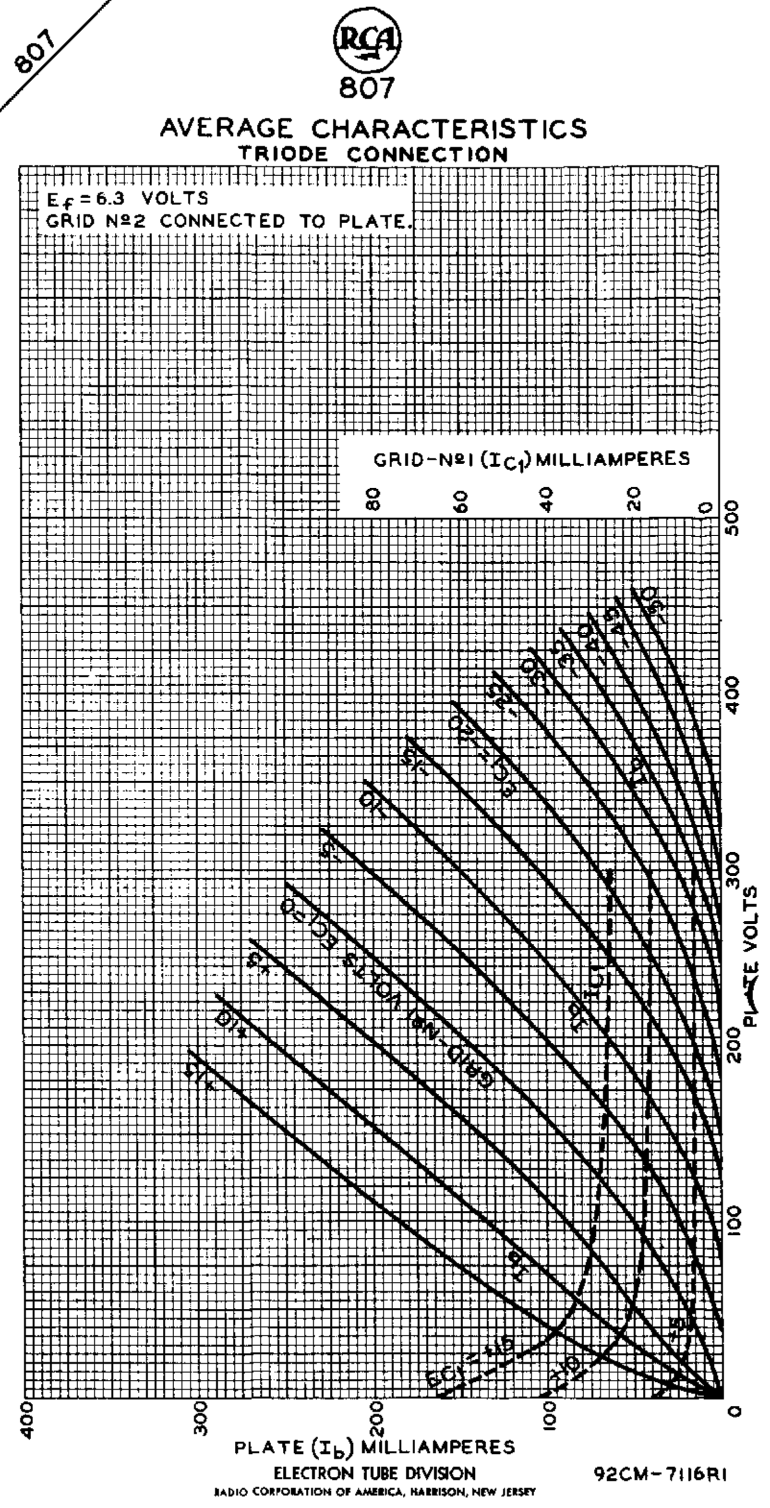
PLATE VOLTS: 0, 200, 400, 600, 800

PLATE MILLIAMPERES: 600, 400, 200

ELECTRON TUBE DIVISION

92CM-4682R3

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

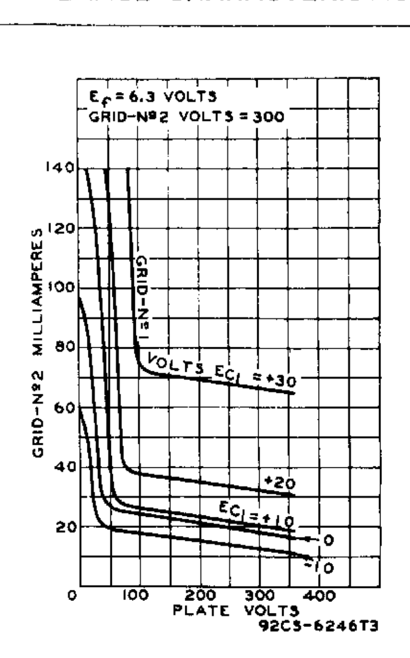


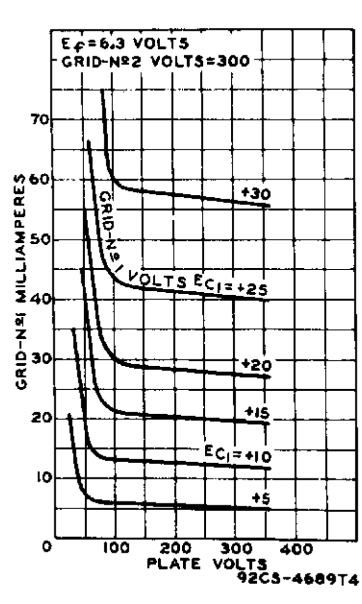
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RCA
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AVERAGE CHARACTERISTICS
TRIODE CONNECTION
Ef = 6.3 VOLTS
GRID No2 CONNECTED TO PLATE.
GRID-No1 (Ic1) MILLIAMPERES
GRID-No1 VOLTS Ec1=0
PLATE VOLTS
PLATE (Ib) MILLIAMPERES
ELECTRON TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-7116R1

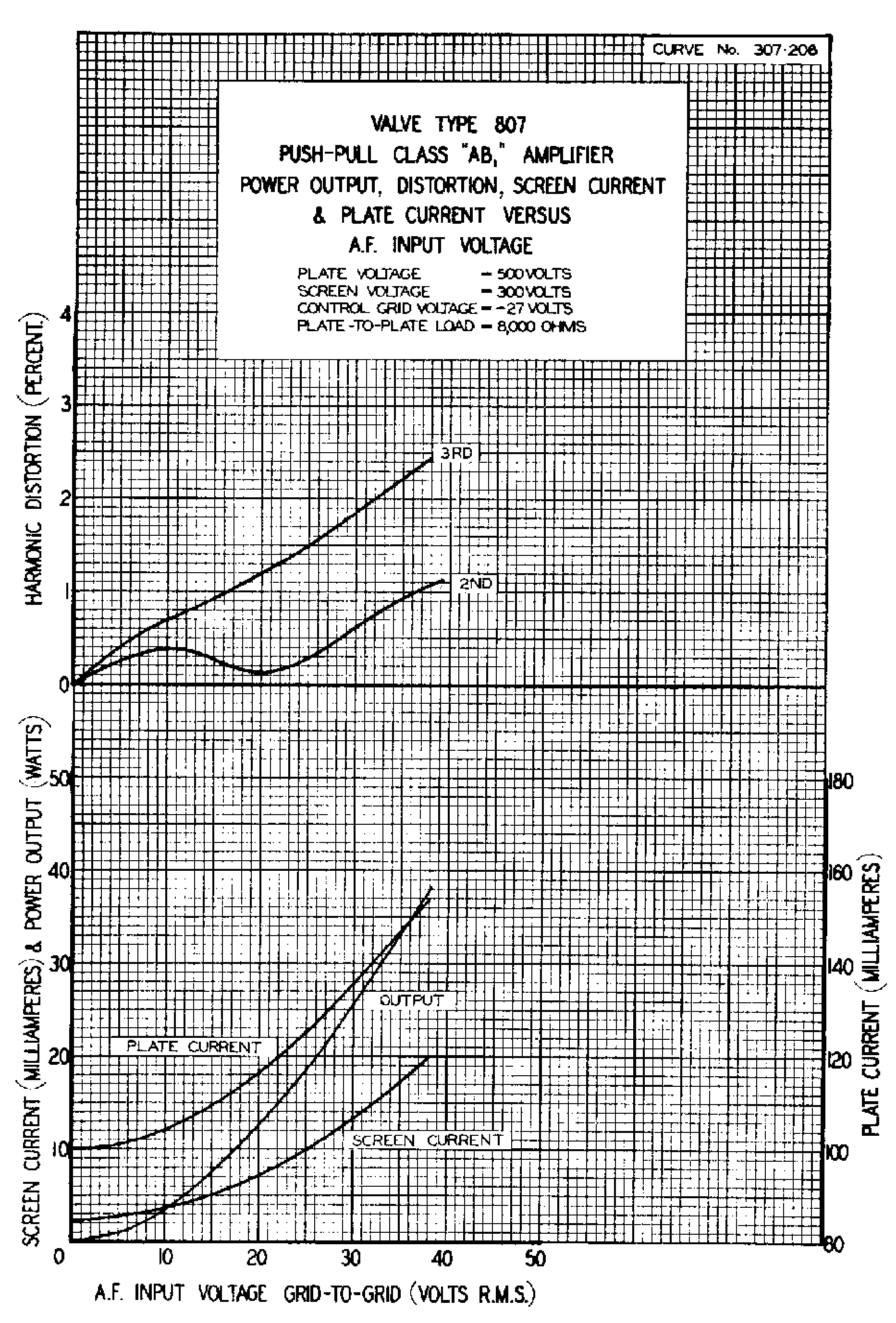


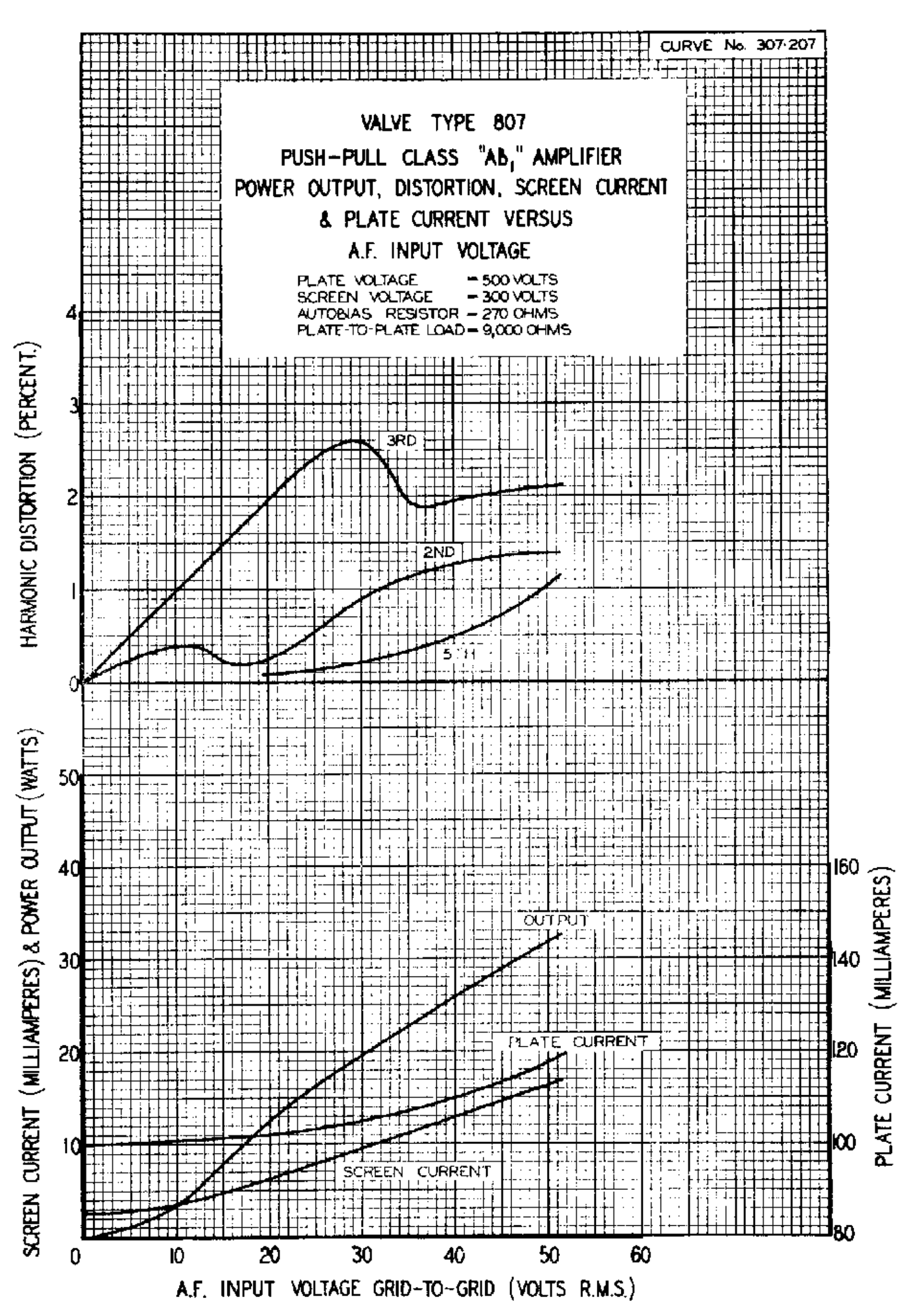
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AVERAGE CHARACTERISTICS

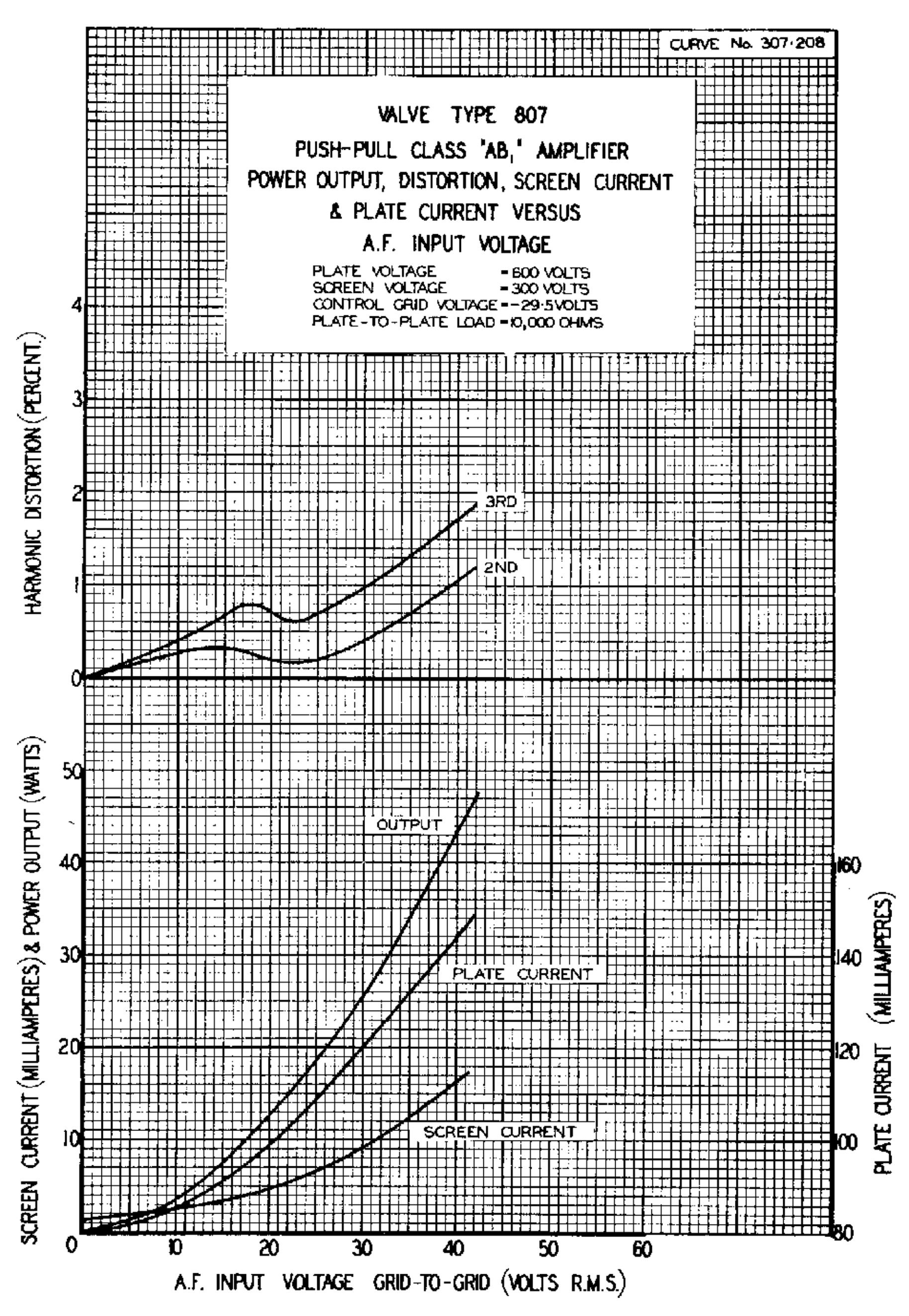


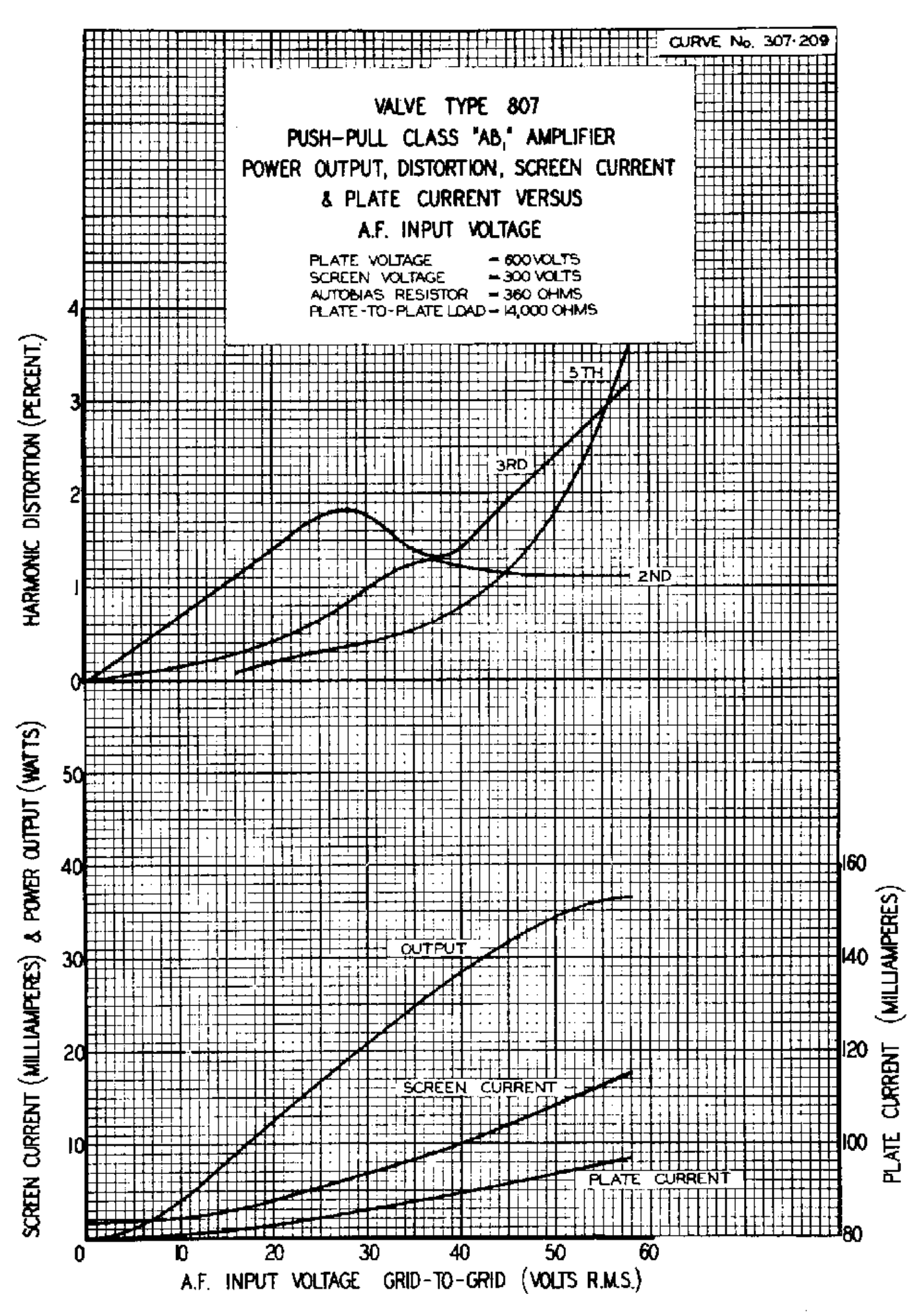


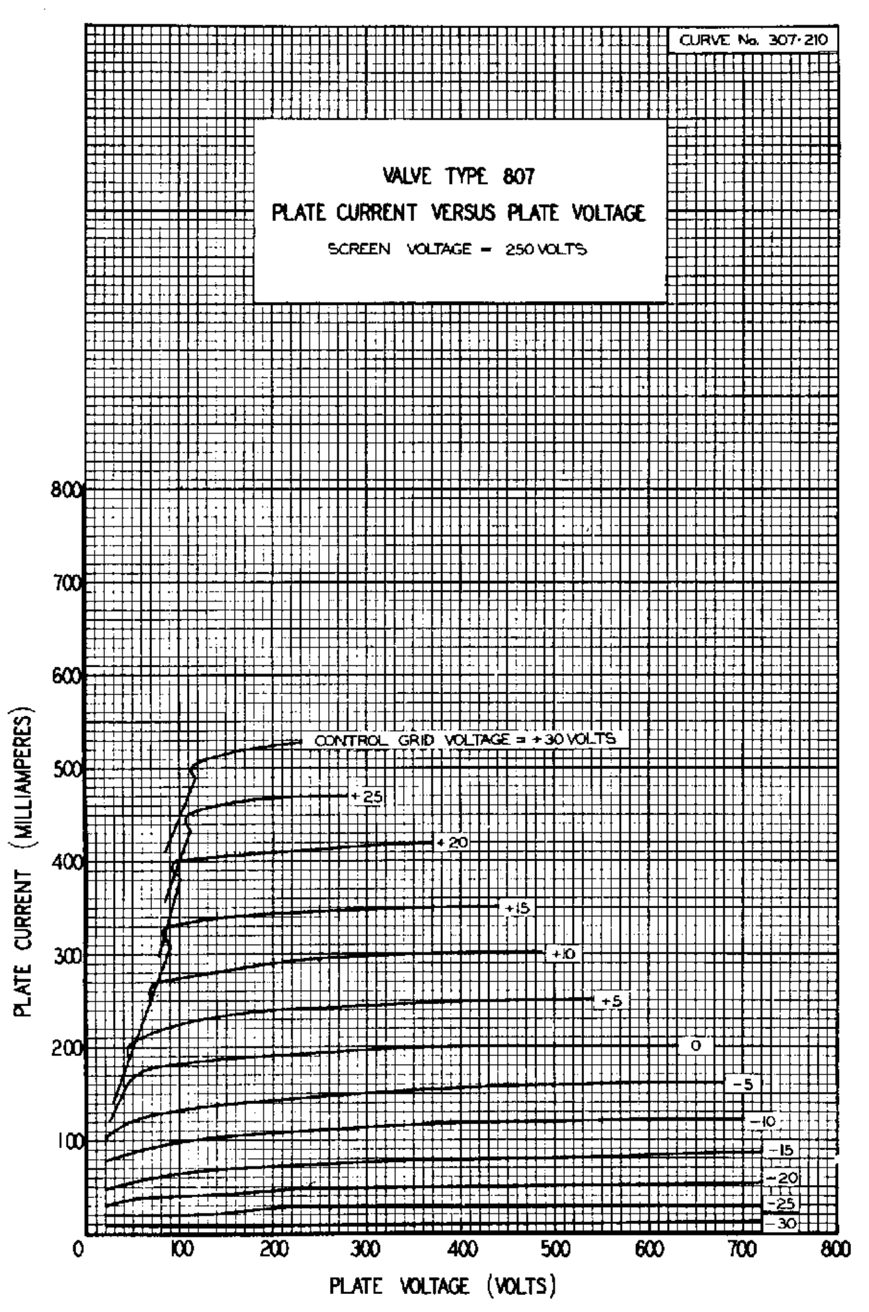

CURVE No. 307-208
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -27 VOLTS
PLATE-TO-PLATE LOAD = 8,000 OHMS
HARMONIC DISTORTION (PERCENT)
0
1
2
3
4
3RD
2ND
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
10
20
30
40
50
PLATE CURRENT (MILLIAMPERES)
80
100
120
140
160
180
OUTPUT
PLATE CURRENT
SCREEN CURRENT
0
10
20
30
40
50
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)



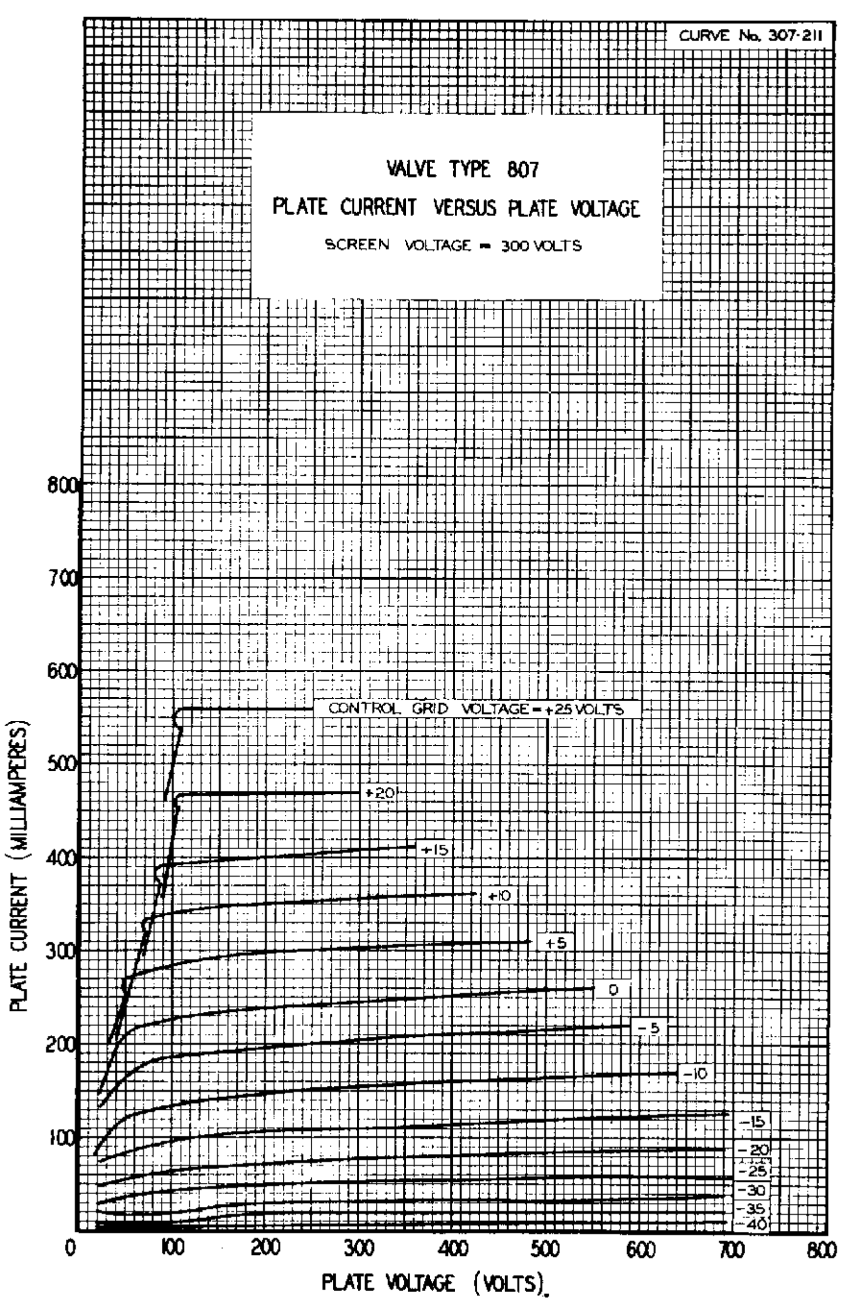
CURVE No. 307·207
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
AUTOBIAS RESISTOR – 270 OHMS
PLATE-TO-PLATE LOAD = 9,000 OHMS
HARMONIC DISTORTION (PERCENT.)
0
1
2
3
4
3RD
2ND
5TH
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
10
20
30
40
50
PLATE CURRENT (MILLIAMPERES)
80
100
120
140
160
OUTPUT
PLATE CURRENT
SCREEN CURRENT
0
10
20
30
40
50
60
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

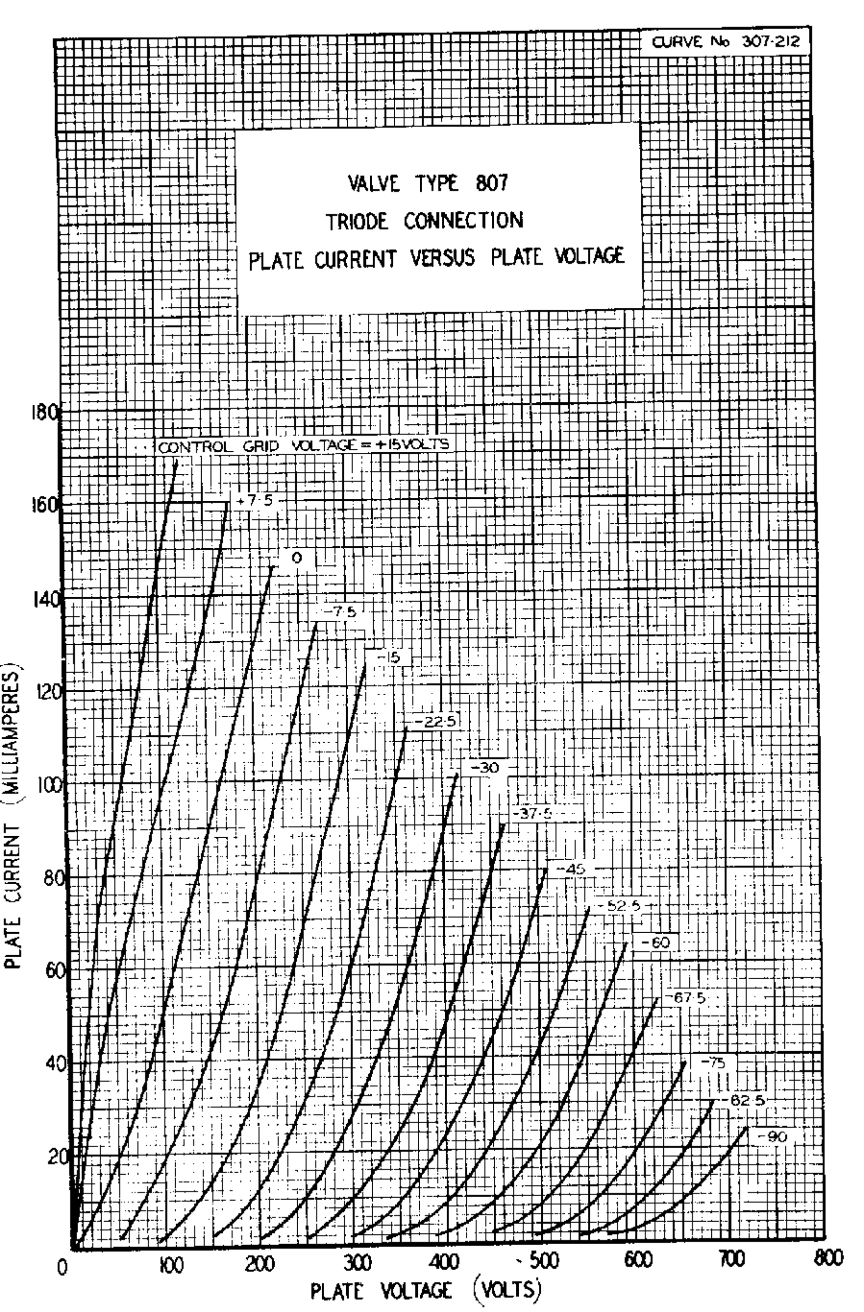

CURVE No. 307·208
VALVE TYPE 807
PUSH-PULL CLASS 'AB1' AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 600 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -29·5 VOLTS
PLATE-TO-PLATE LOAD = 10,000 OHMS
HARMONIC DISTORTION (PERCENT.)
0
1
2
3
4
3RD
2ND
OUTPUT
PLATE CURRENT
SCREEN CURRENT
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
0
10
20
30
40
50
PLATE CURRENT (MILLIAMPERES)
80
100
120
140
160
10
20
30
40
50
60
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)


CURVE No. 307·209
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 600 VOLTS
SCREEN VOLTAGE = 300 VOLTS
AUTOBIAS RESISTOR = 360 OHMS
PLATE-TO-PLATE LOAD = 14,000 OHMS
HARMONIC DISTORTION (PERCENT.)
5TH
3RD
2ND
OUTPUT
SCREEN CURRENT
PLATE CURRENT
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
PLATE CURRENT (MILLIAMPERES)
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
1
2
3
4
10
20
30
40
50
60
80
100
120
140
160

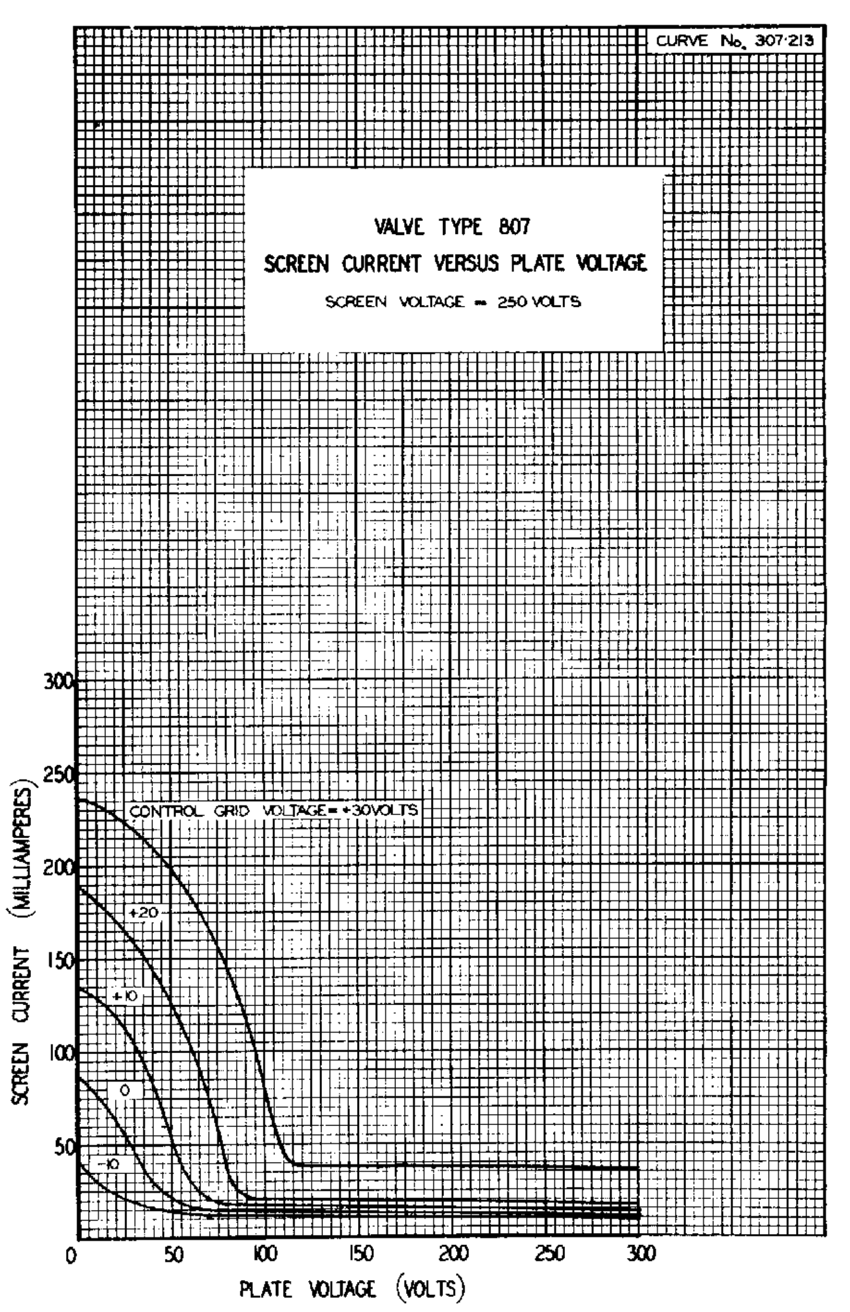


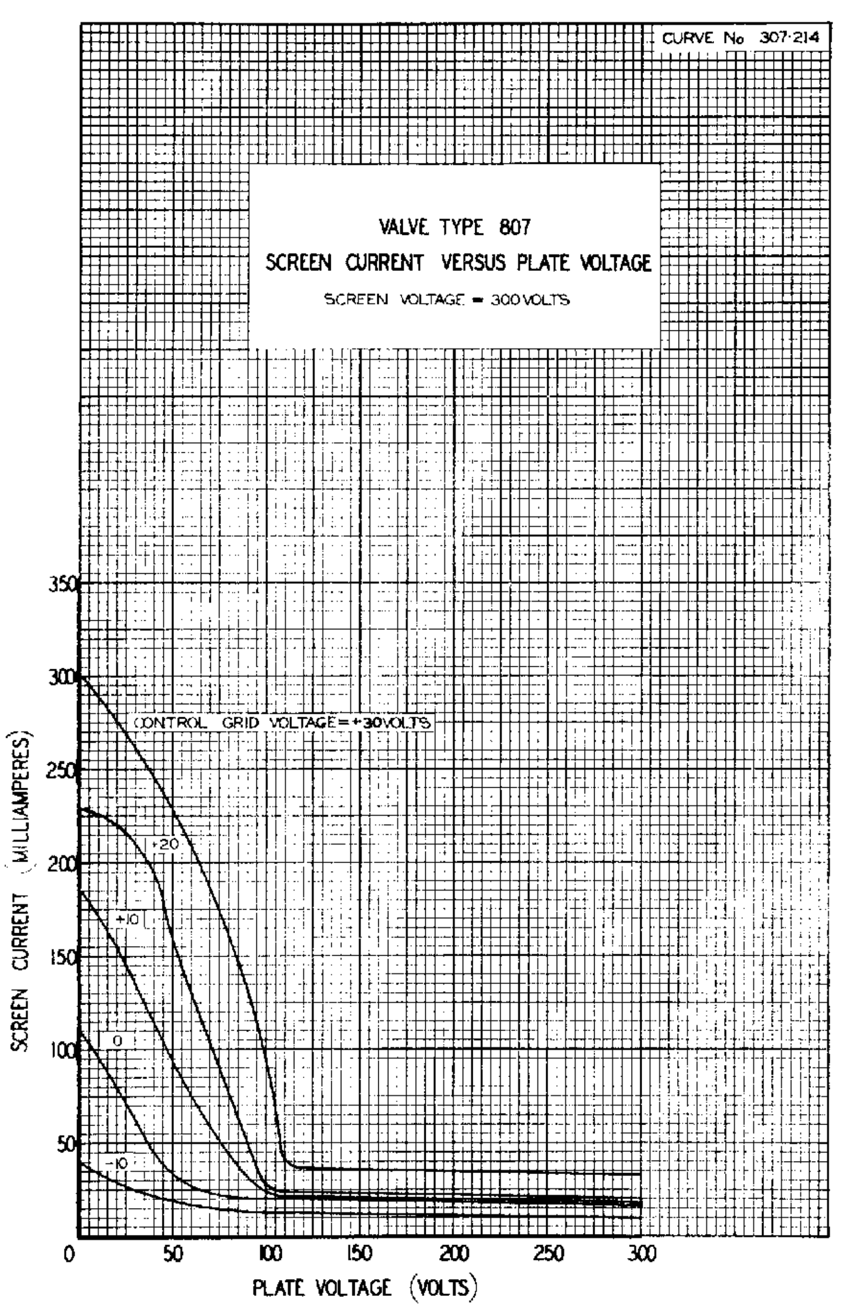
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VALVE TYPE 807
PLATE CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = +30 VOLTS
+25
+20
+15
+10
+5
0
−5
−10
−15
−20
−25
−30
PLATE CURRENT (MILLIAMPERES)
800
700
600
500
400
300
200
100
0
100
200
300
400
500
600
700
800
PLATE VOLTAGE (VOLTS)


CURVE No. 307-211
VALVE TYPE 807
PLATE CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = +25 VOLTS
+20
+15
+10
+5
0
-5
-10
-15
-20
-25
-30
-35
-40
PLATE CURRENT (MILLIAMPERES)
800
700
600
500
400
300
200
100
0
100
200
300
400
500
600
700
800
PLATE VOLTAGE (VOLTS).

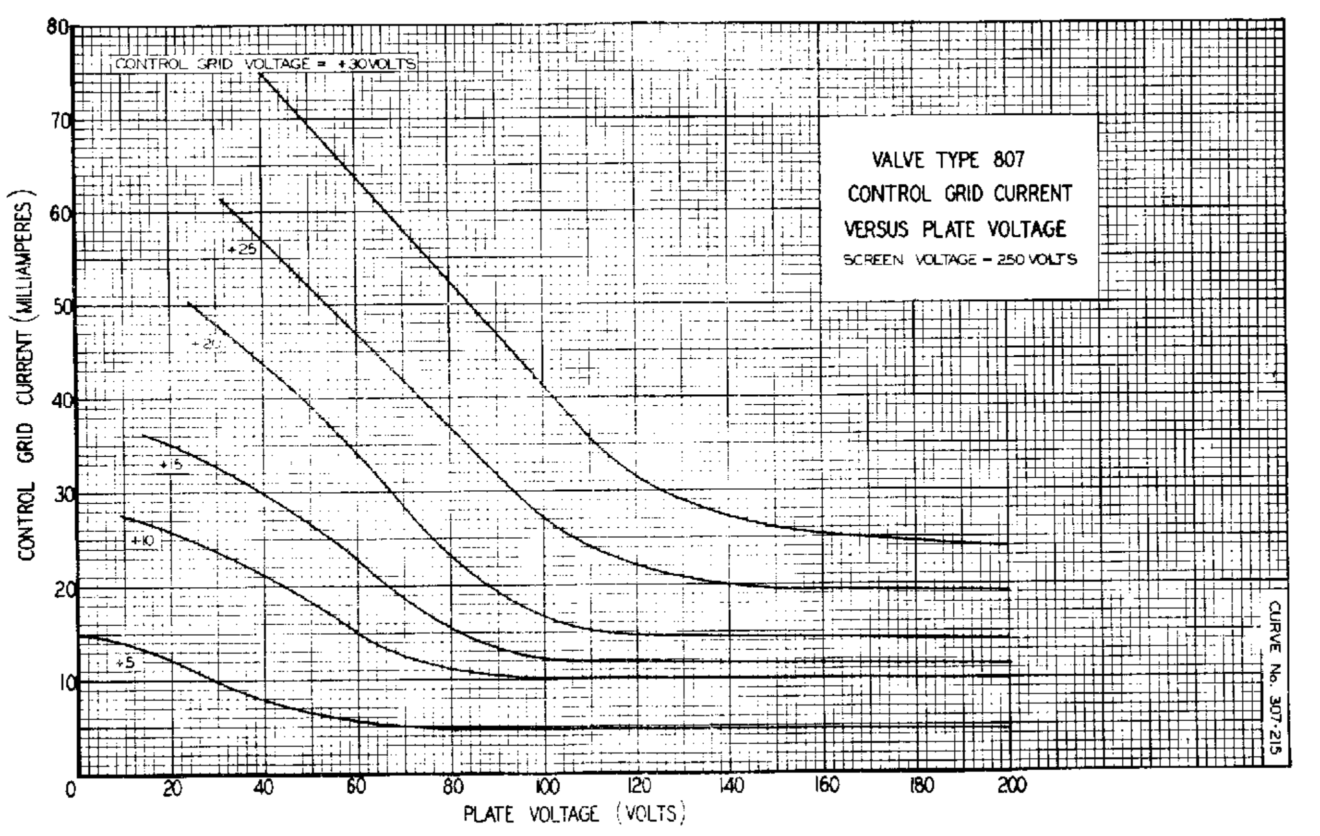


CURVE No 307-212
VALVE TYPE 807
TRIODE CONNECTION
PLATE CURRENT VERSUS PLATE VOLTAGE
CONTROL GRID VOLTAGE = +15VOLTS
+7·5
0
-7·5
-15
-22·5
-30
-37·5
-45
-52·5
-60
-67·5
-75
-82·5
-90
PLATE CURRENT (MILLIAMPERES)
180
160
140
120
100
80
60
40
20
0
100
200
300
400
500
600
700
800
PLATE VOLTAGE (VOLTS)

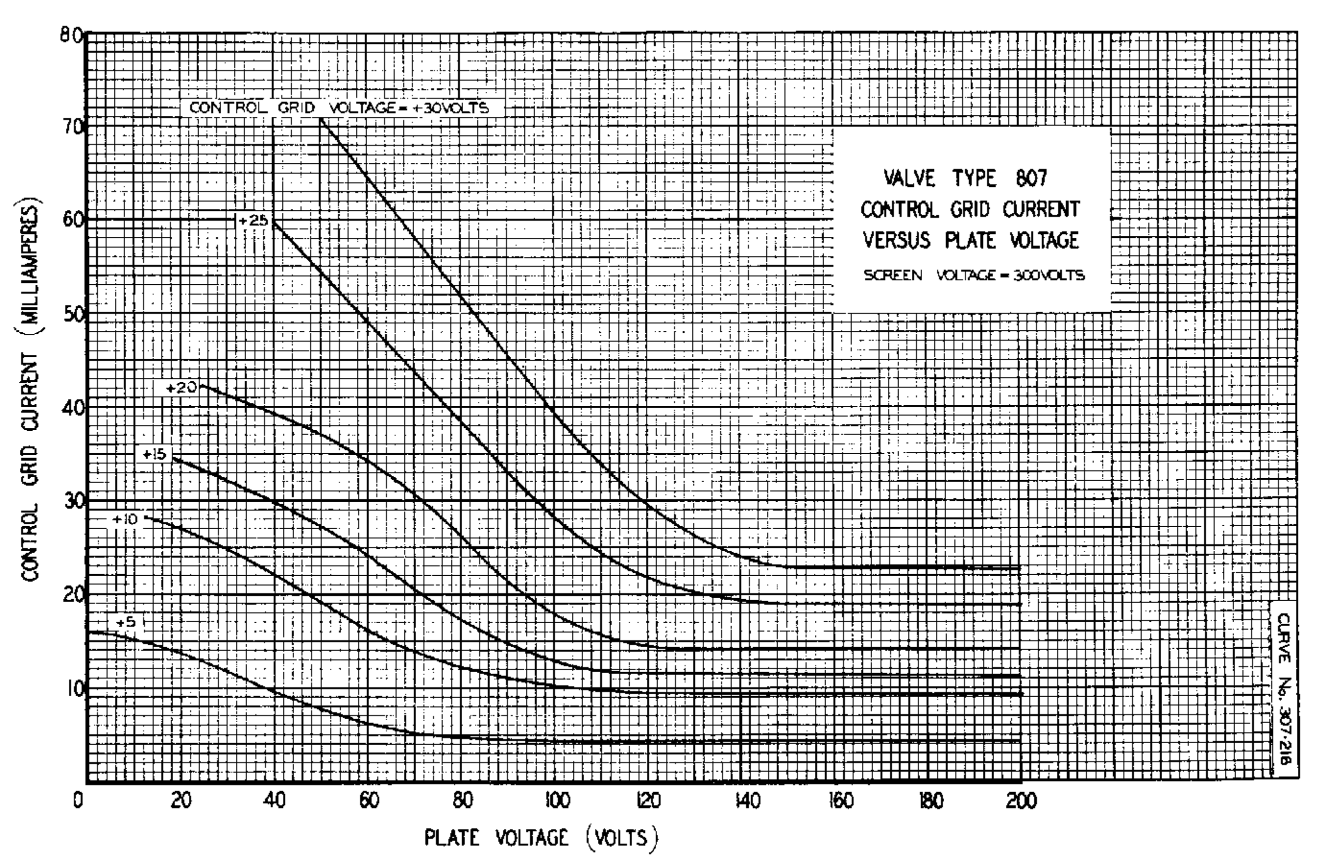

CURVE No. 307·213
VALVE TYPE 807
SCREEN CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = +30 VOLTS
+20
+10
0
-10
300
250
200
150
100
50
0
50
100
150
200
250
300
SCREEN CURRENT (MILLIAMPERES)
PLATE VOLTAGE (VOLTS)



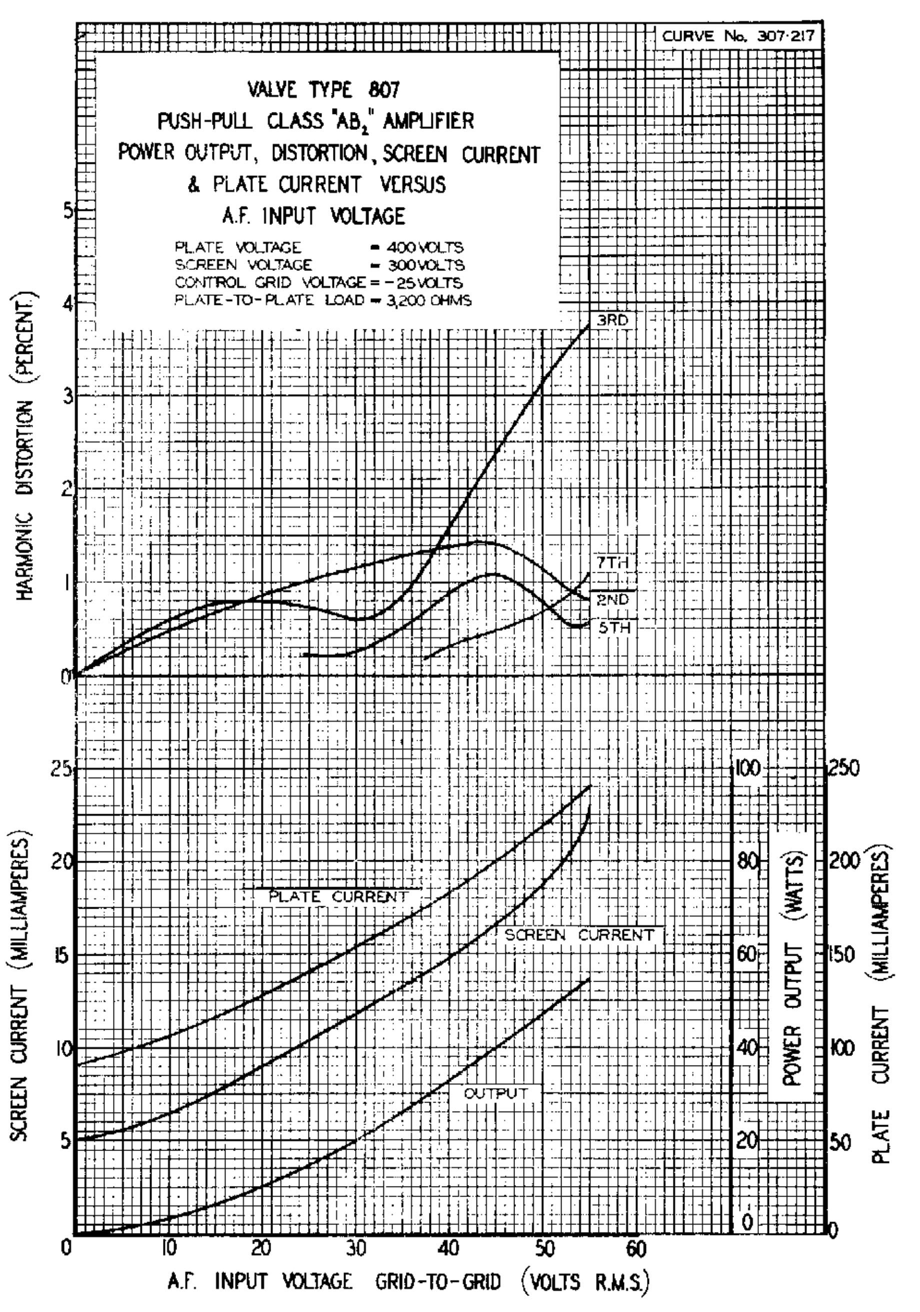
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VALVE TYPE 807
SCREEN CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = +30 VOLTS
+20
+10
0
-10
SCREEN CURRENT (MILLIAMPERES)
350
300
250
200
150
100
50
0
50
100
150
200
250
300
PLATE VOLTAGE (VOLTS)



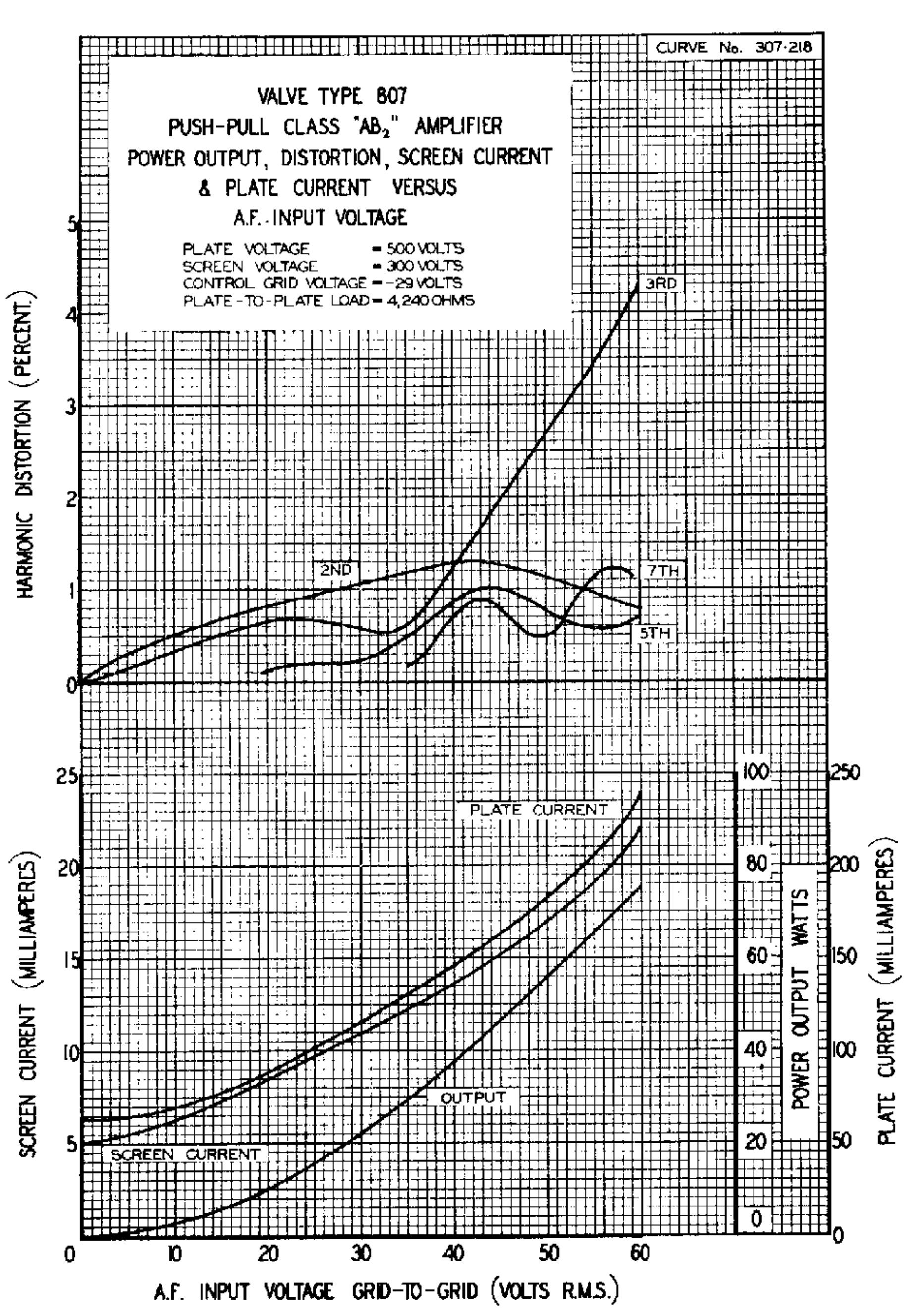
CURVE No. 307-215
VALVE TYPE 807
CONTROL GRID CURRENT
VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = +30 VOLTS
+25
+20
+15
+10
+5
CONTROL GRID CURRENT (MILLIAMPERES)
80
70
60
50
40
30
20
10
0
20
40
60
80
100
120
140
160
180
200
PLATE VOLTAGE (VOLTS)



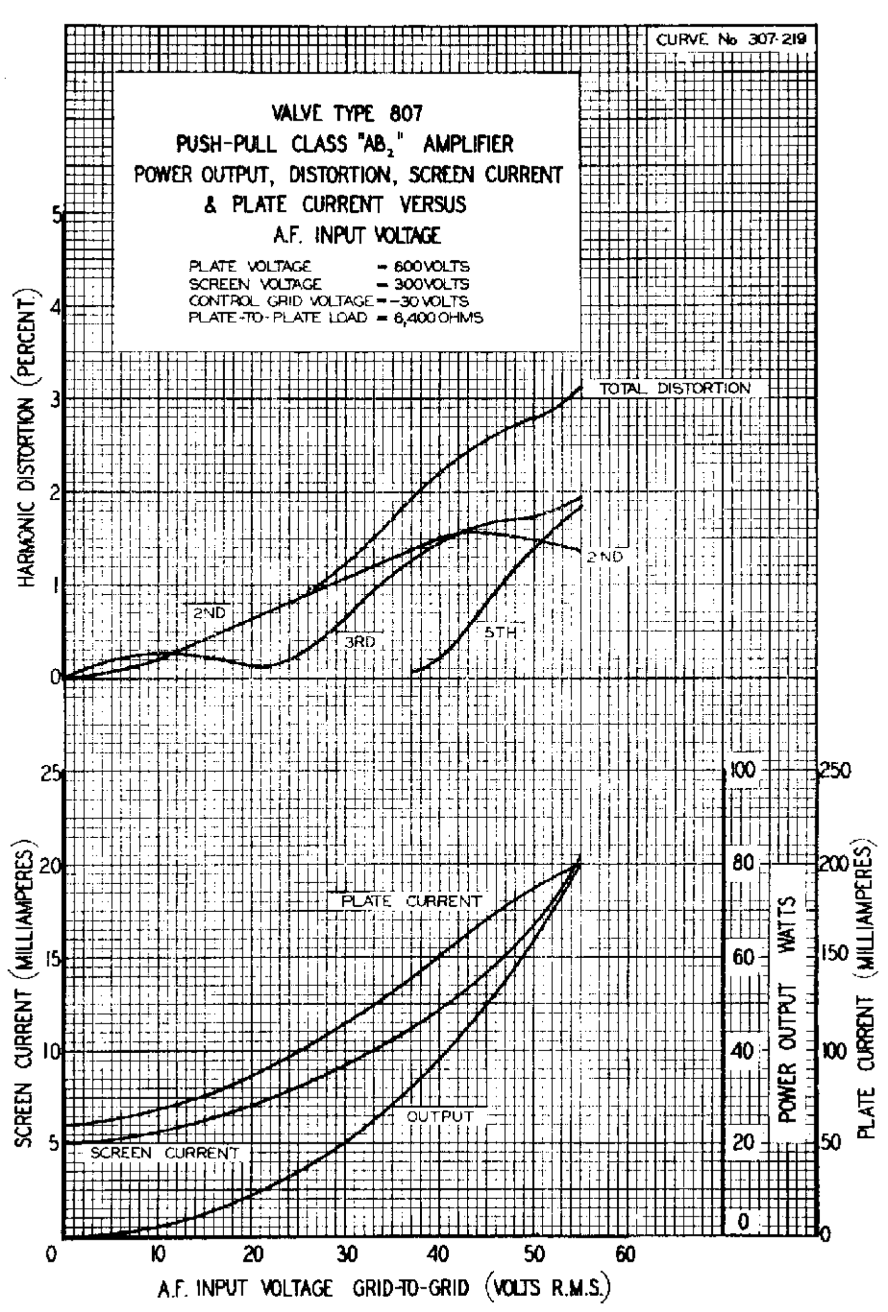
VALVE TYPE 807
CONTROL GRID CURRENT
VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 300VOLTS
CONTROL GRID VOLTAGE = +30VOLTS
+25
+20
+15
+10
+5
CURVE No. 307-216
CONTROL GRID CURRENT (MILLIAMPERES)
PLATE VOLTAGE (VOLTS)
0
10
20
30
40
50
60
70
80
0
20
40
60
80
100
120
140
160
180
200

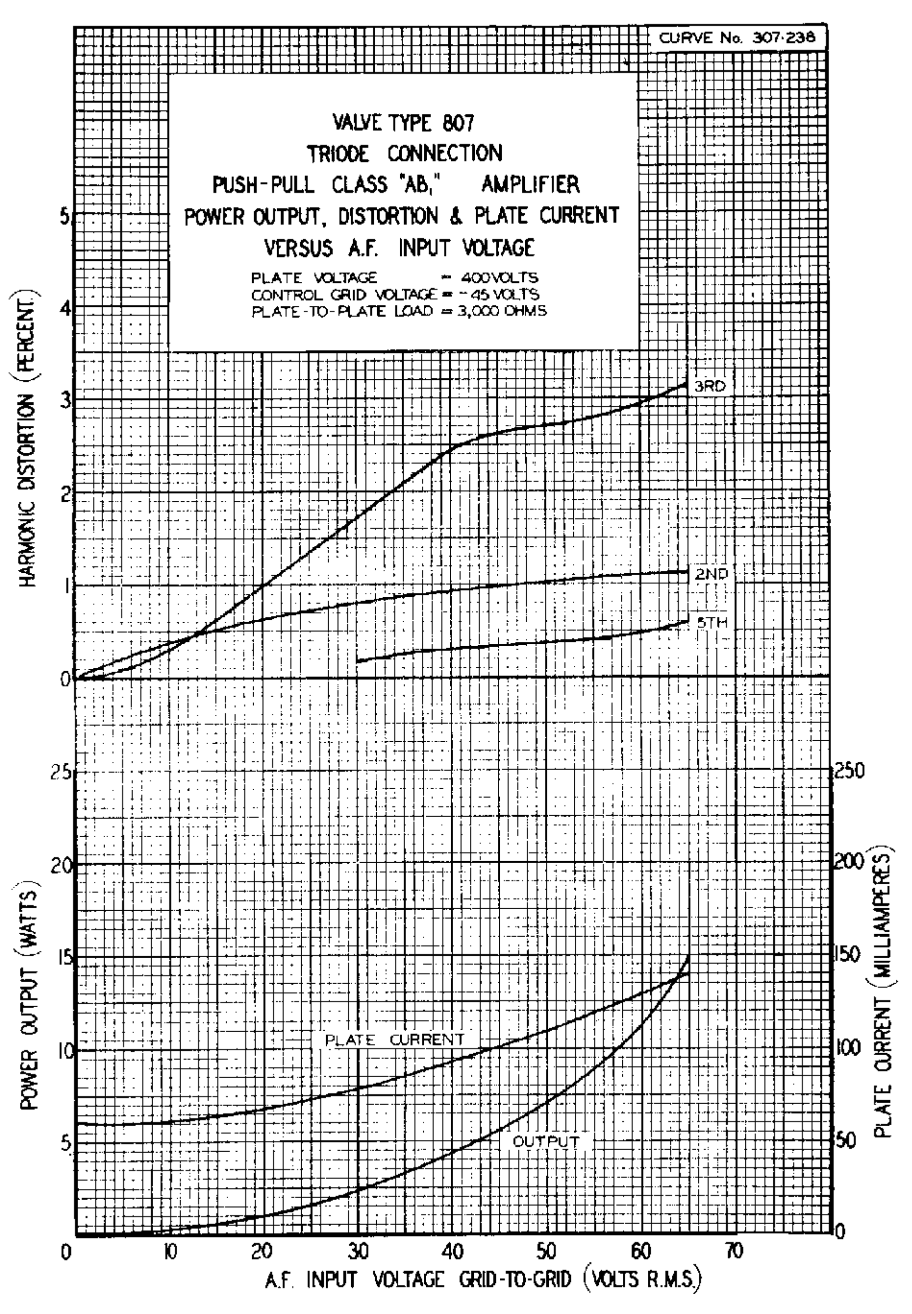


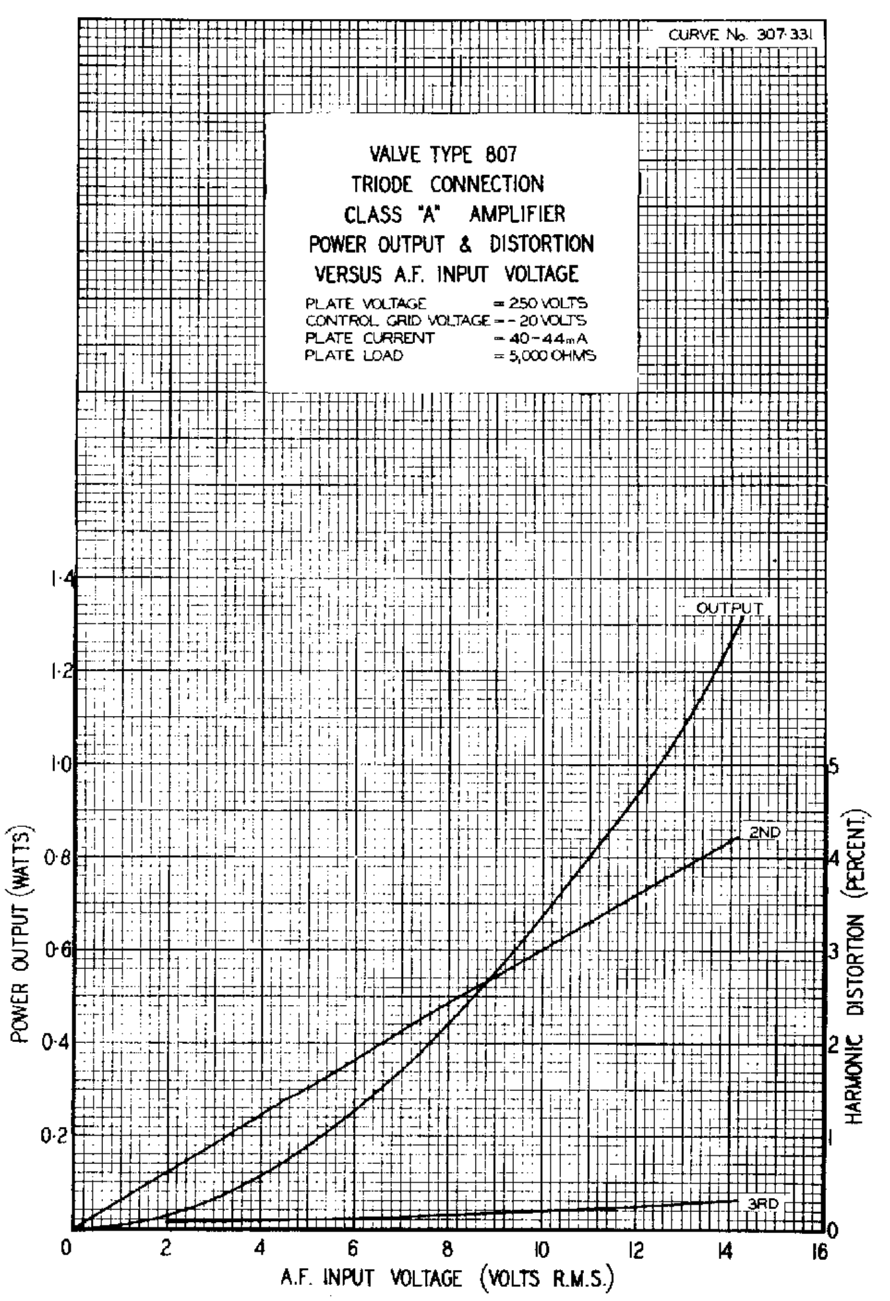
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VALVE TYPE 807
PUSH-PULL CLASS "AB2" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 400 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -25 VOLTS
PLATE-TO-PLATE LOAD = 3,200 OHMS
HARMONIC DISTORTION (PERCENT)
0
1
2
3
4
5
3RD
7TH
2ND
5TH
SCREEN CURRENT (MILLIAMPERES)
5
10
15
20
25
PLATE CURRENT
SCREEN CURRENT
OUTPUT
POWER OUTPUT (WATTS)
0
20
40
60
80
100
PLATE CURRENT (MILLIAMPERES)
0
50
100
150
200
250
0
10
20
30
40
50
60
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

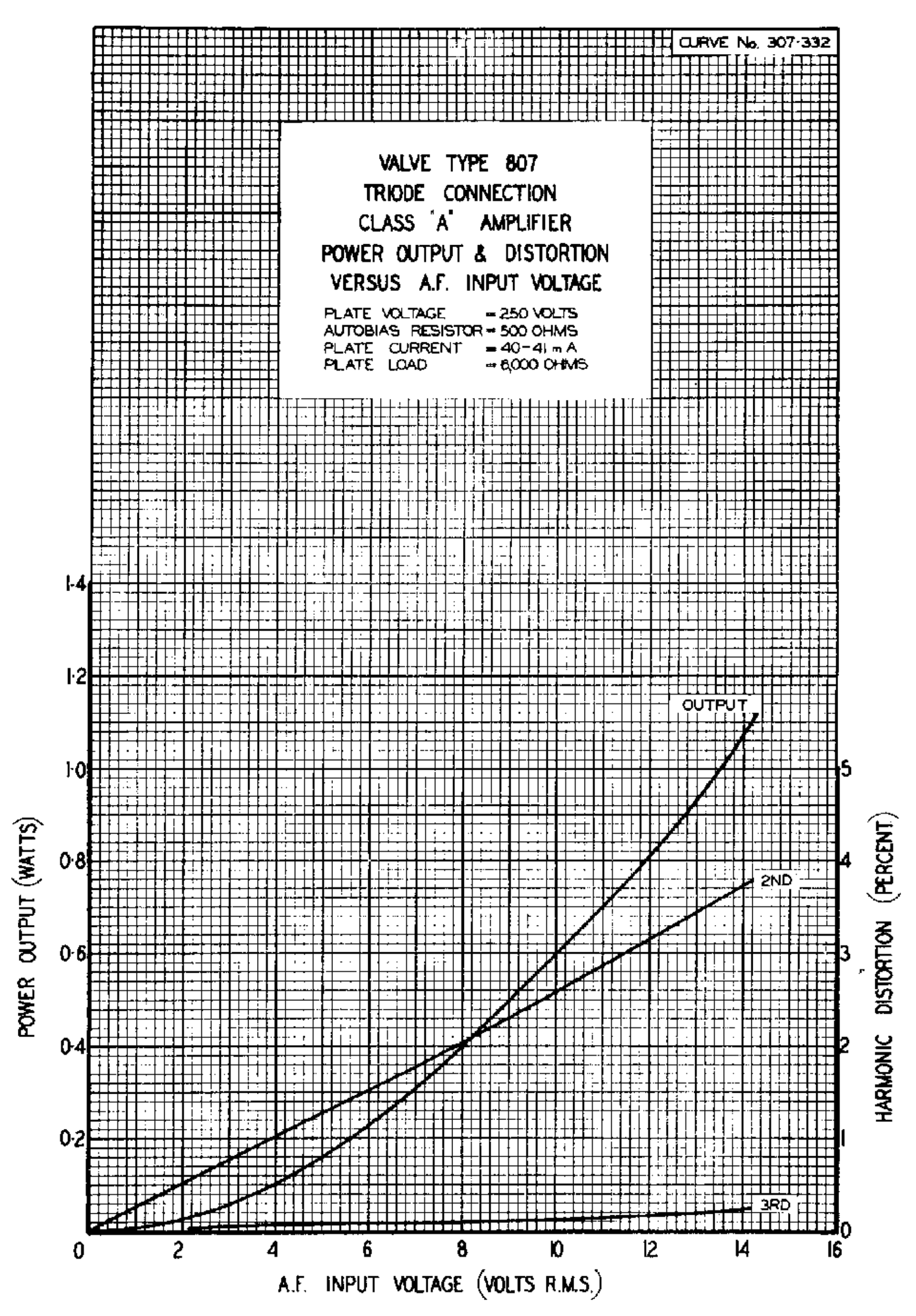


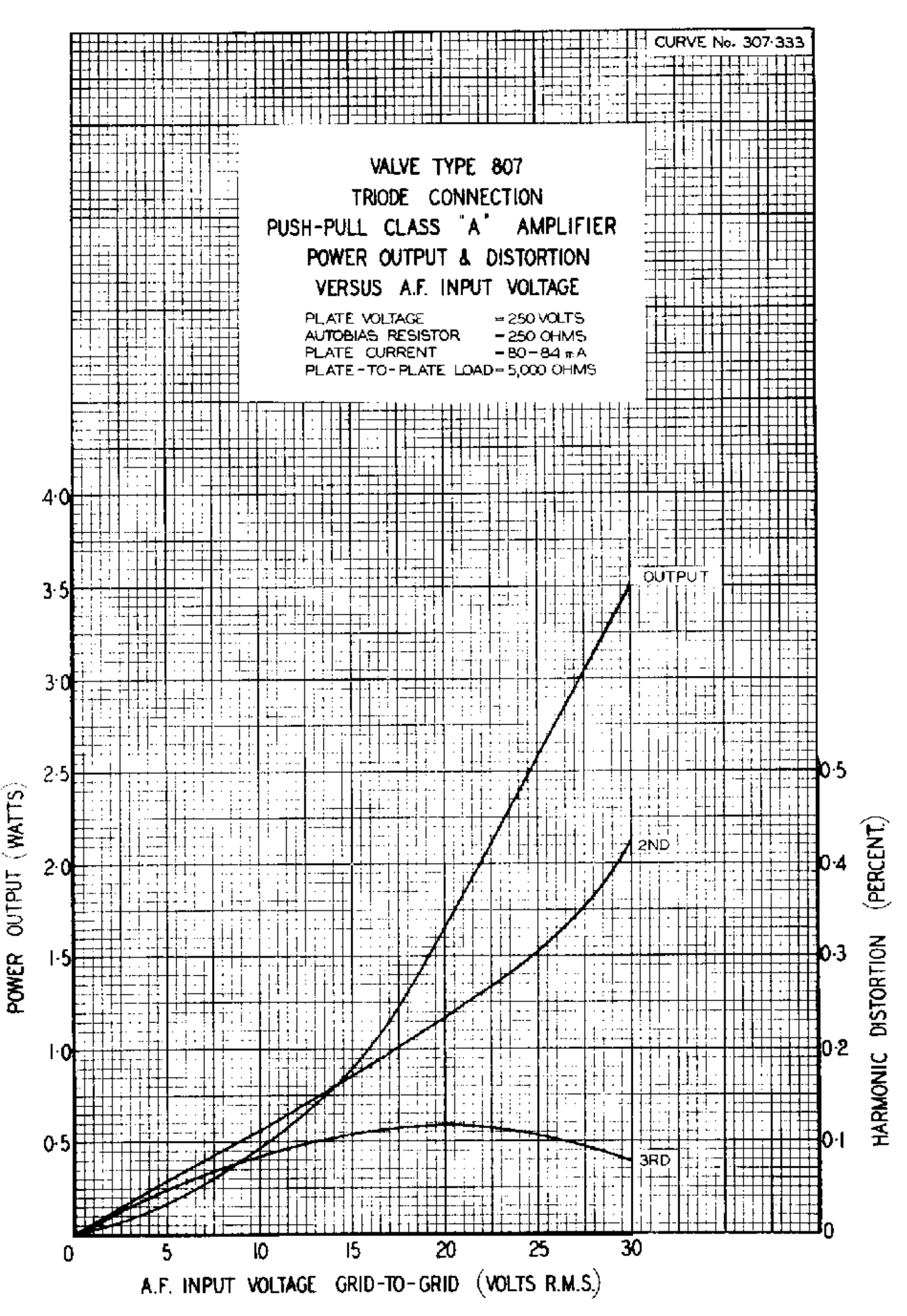
CURVE No. 307-218
VALVE TYPE 807
PUSH-PULL CLASS "AB2" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -29 VOLTS
PLATE-TO-PLATE LOAD = 4,240 OHMS
3RD
2ND
7TH
5TH
HARMONIC DISTORTION (PERCENT.)
0
1
2
3
4
5
PLATE CURRENT
OUTPUT
SCREEN CURRENT
SCREEN CURRENT (MILLIAMPERES)
5
10
15
20
25
POWER OUTPUT WATTS
0
20
40
60
80
100
PLATE CURRENT (MILLIAMPERES)
0
50
100
150
200
250
0
10
20
30
40
50
60
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)


CURVE No 307-219
VALVE TYPE 807
PUSH-PULL CLASS "AB2" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 600 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -30 VOLTS
PLATE-TO-PLATE LOAD = 6,400 OHMS
TOTAL DISTORTION
2ND
2ND
3RD
5TH
HARMONIC DISTORTION (PERCENT)
PLATE CURRENT
OUTPUT
SCREEN CURRENT
SCREEN CURRENT (MILLIAMPERES)
POWER OUTPUT WATTS
PLATE CURRENT (MILLIAMPERES)
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
10
20
30
40
50
60
5
4
3
2
1
0
25
20
15
10
5
100
80
60
40
20
0
250
200
150
100
50
0

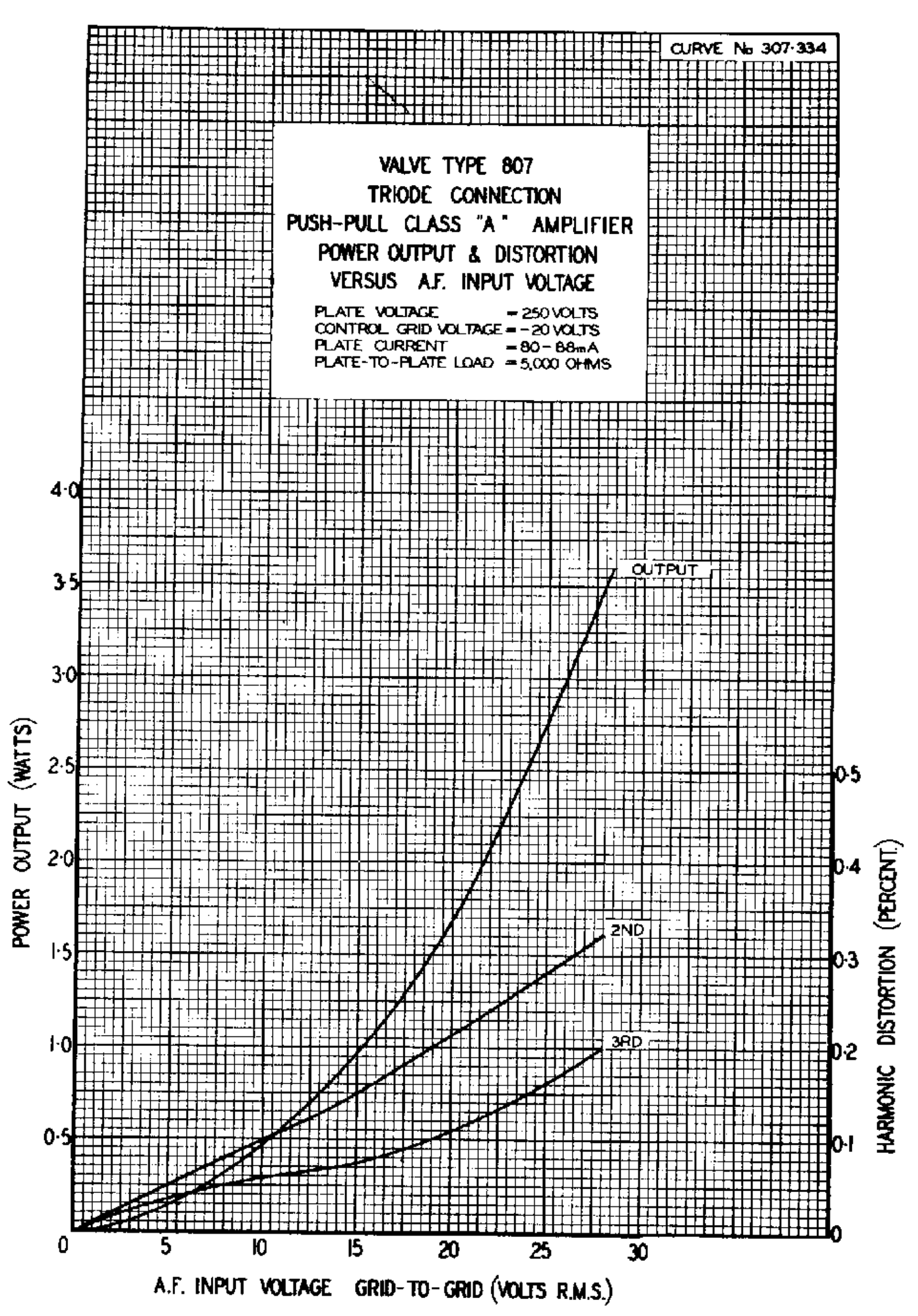

CURVE No. 307-238
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION & PLATE CURRENT
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 400 VOLTS
CONTROL GRID VOLTAGE = -45 VOLTS
PLATE-TO-PLATE LOAD = 3,000 OHMS
HARMONIC DISTORTION (PERCENT)
3RD
2ND
5TH
POWER OUTPUT (WATTS)
PLATE CURRENT (MILLIAMPERES)
PLATE CURRENT
OUTPUT
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
1
2
3
4
5
10
15
20
25
30
40
50
60
70
100
150
200
250


CURVE No. 307·331
VALVE TYPE 807
TRIODE CONNECTION
CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = - 20 VOLTS
PLATE CURRENT = 40 - 44 mA
PLATE LOAD = 5,000 OHMS
OUTPUT
2ND
3RD
POWER OUTPUT (WATTS)
HARMONIC DISTORTION (PERCENT)
A.F. INPUT VOLTAGE (VOLTS R.M.S.)
0
2
4
6
8
10
12
14
16
0·2
0·4
0·6
0·8
1·0
1·2
1·4
1
2
3
4
5

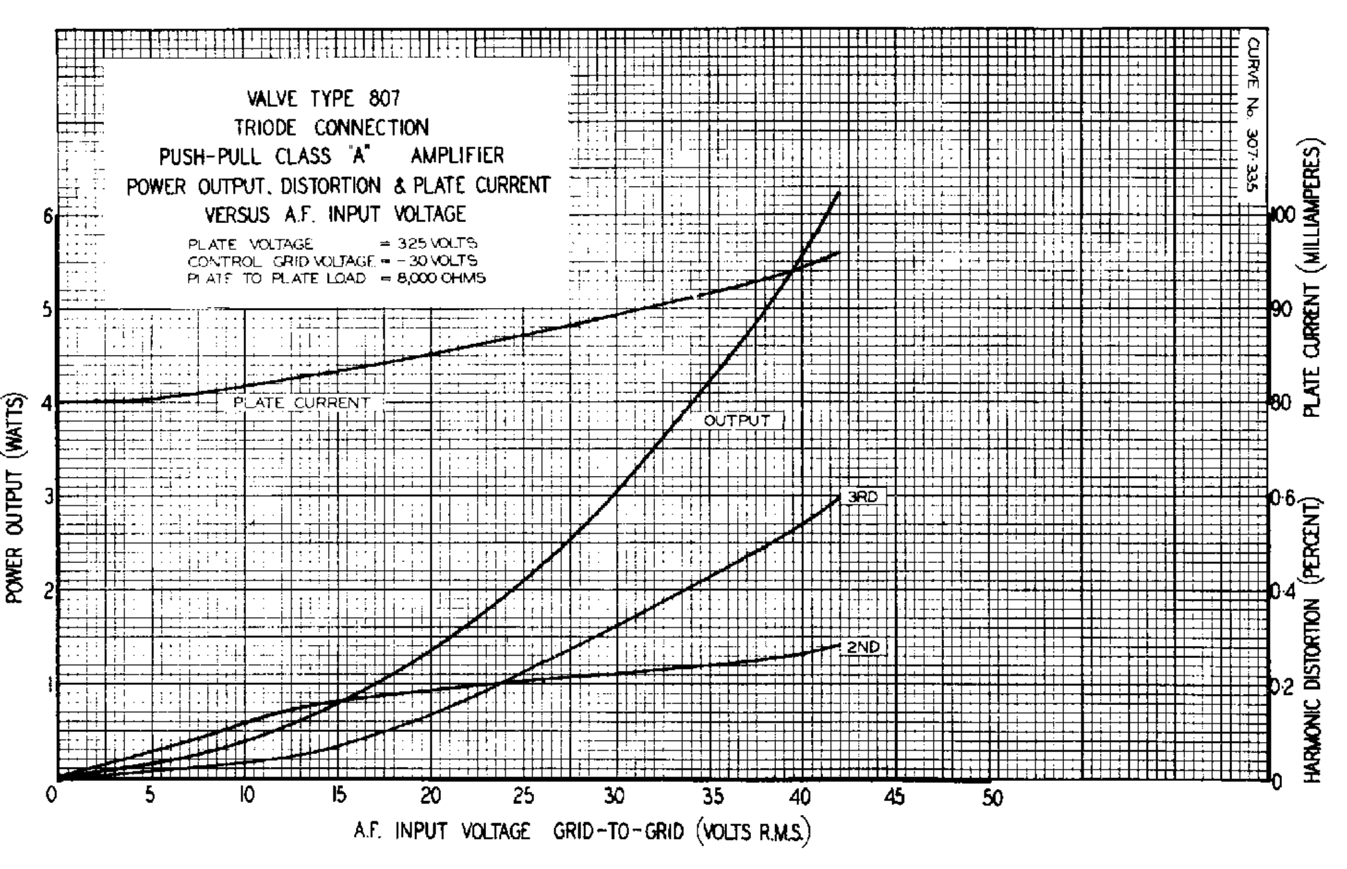

CURVE No. 307-332
VALVE TYPE 807
TRIODE CONNECTION
CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
AUTOBIAS RESISTOR = 500 OHMS
PLATE CURRENT = 40-41 mA
PLATE LOAD = 6,000 OHMS
OUTPUT
2ND
3RD
POWER OUTPUT (WATTS)
HARMONIC DISTORTION (PERCENT)
A.F. INPUT VOLTAGE (VOLTS R.M.S.)
1·4
1·2
1·0
0·8
0·6
0·4
0·2
5
4
3
2
1
0
0
2
4
6
8
10
12
14
16

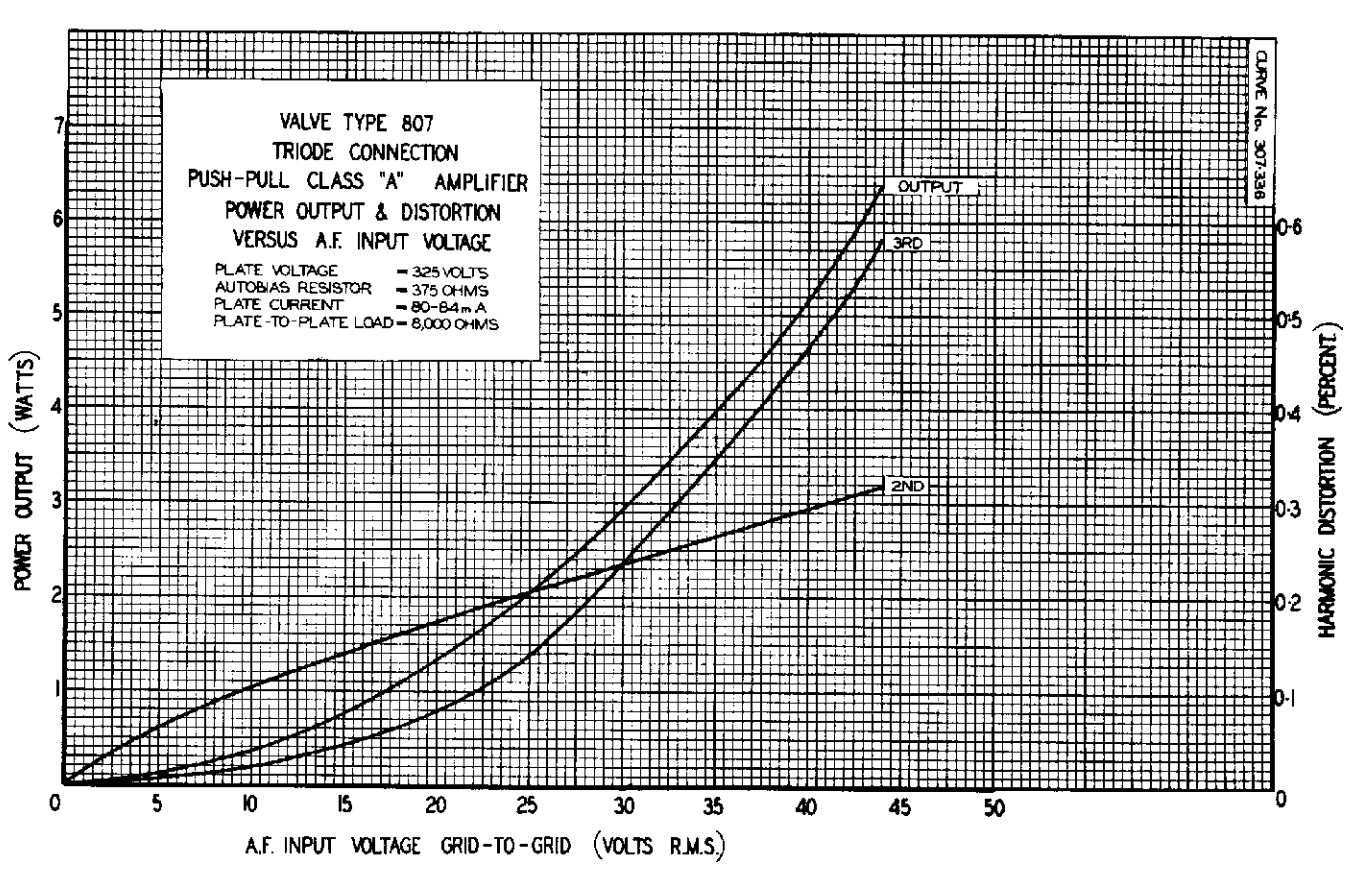


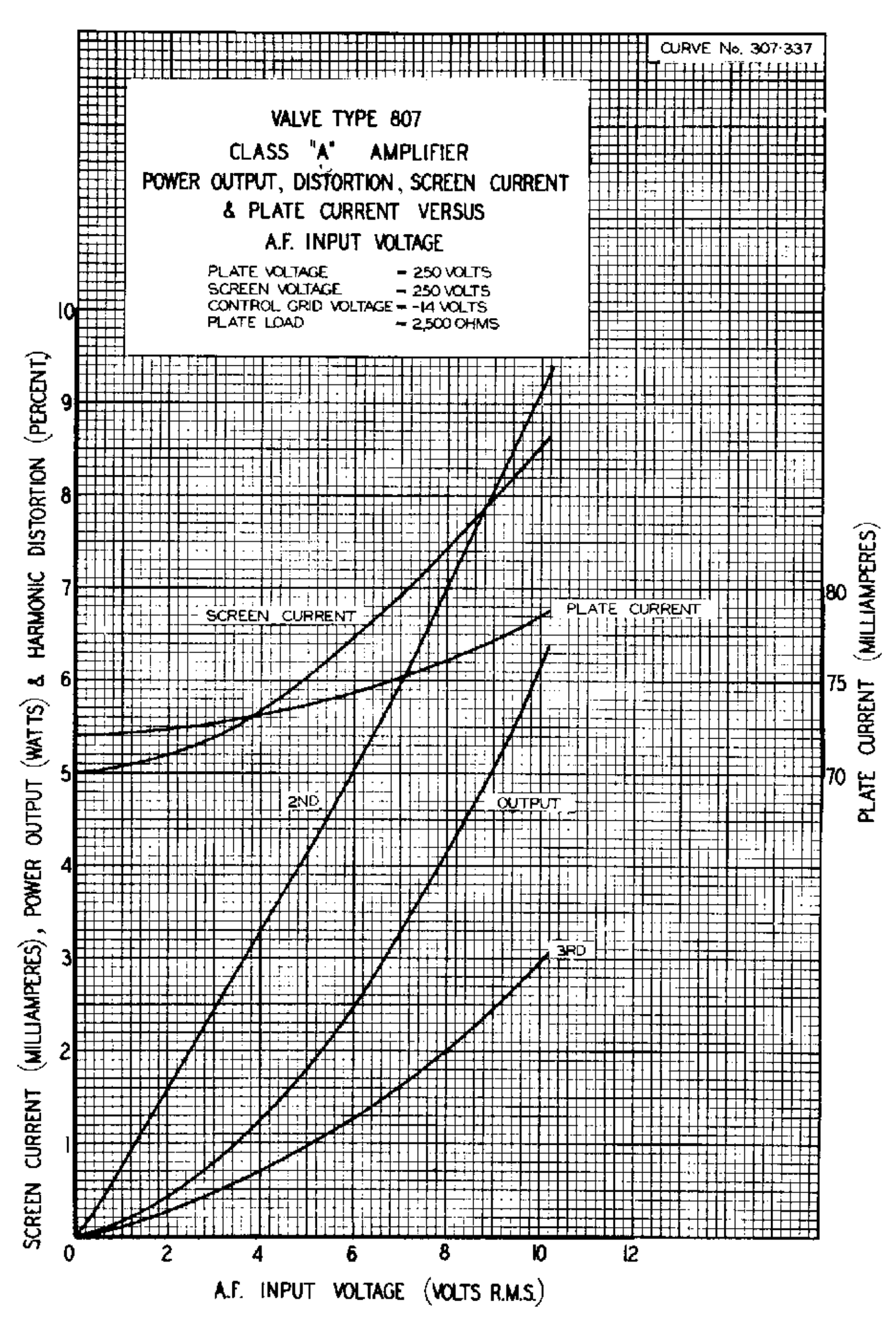
CURVE No. 307-333
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
AUTOBIAS RESISTOR = 250 OHMS
PLATE CURRENT = 80-84 mA
PLATE-TO-PLATE LOAD = 5,000 OHMS
OUTPUT
2ND
3RD
POWER OUTPUT (WATTS)
HARMONIC DISTORTION (PERCENT)
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
5
10
15
20
25
30
0·5
1·0
1·5
2·0
2·5
3·0
3·5
4·0
0·1
0·2
0·3
0·4
0·5



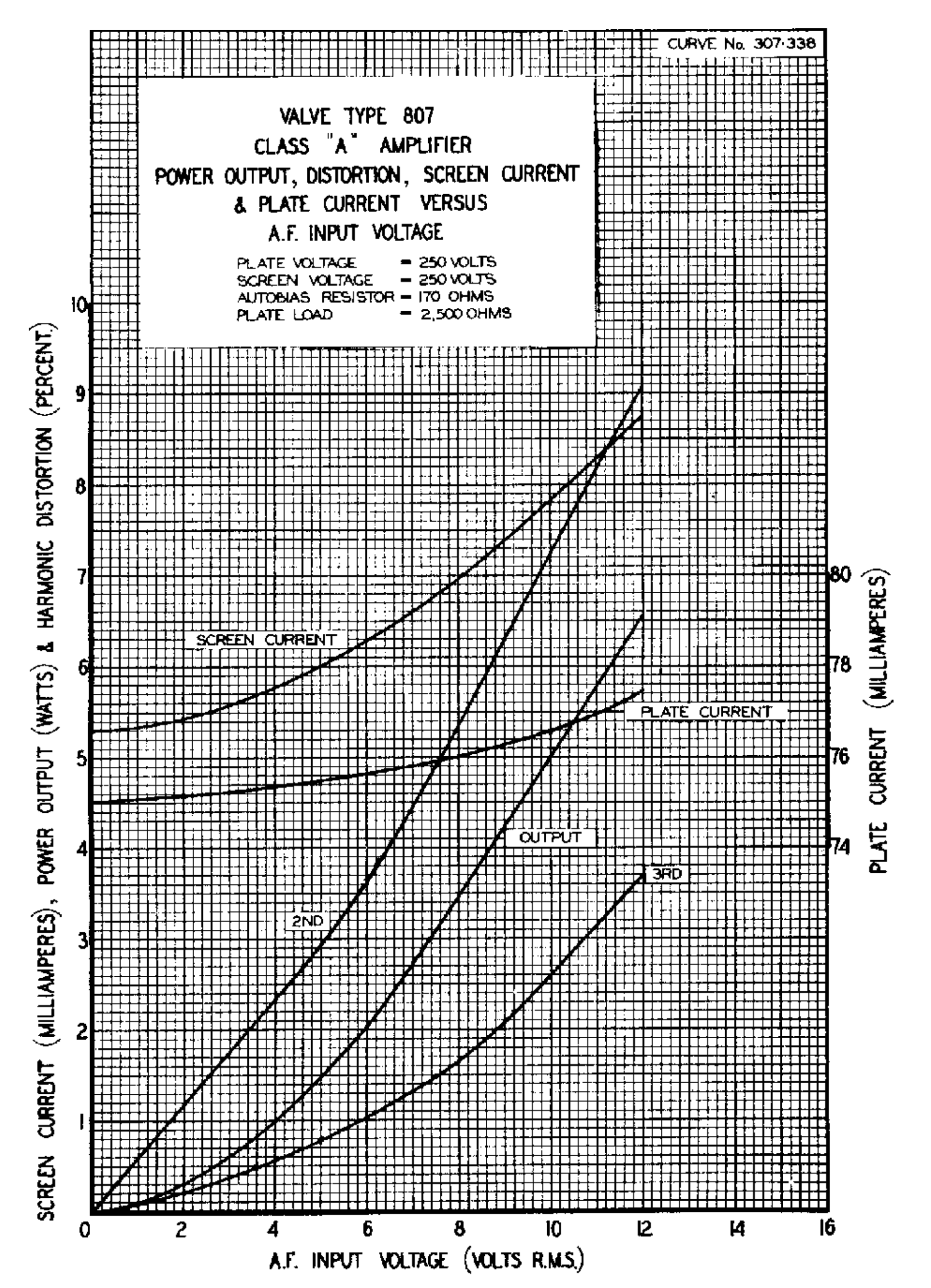
CURVE No 307·334
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = -20 VOLTS
PLATE CURRENT = 80 - 88 mA
PLATE-TO-PLATE LOAD = 5,000 OHMS
OUTPUT
2ND
3RD
POWER OUTPUT (WATTS)
HARMONIC DISTORTION (PERCENT)
4·0
3·5
3·0
2·5
2·0
1·5
1·0
0·5
0·5
0·4
0·3
0·2
0·1
0
0
5
10
15
20
25
30
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

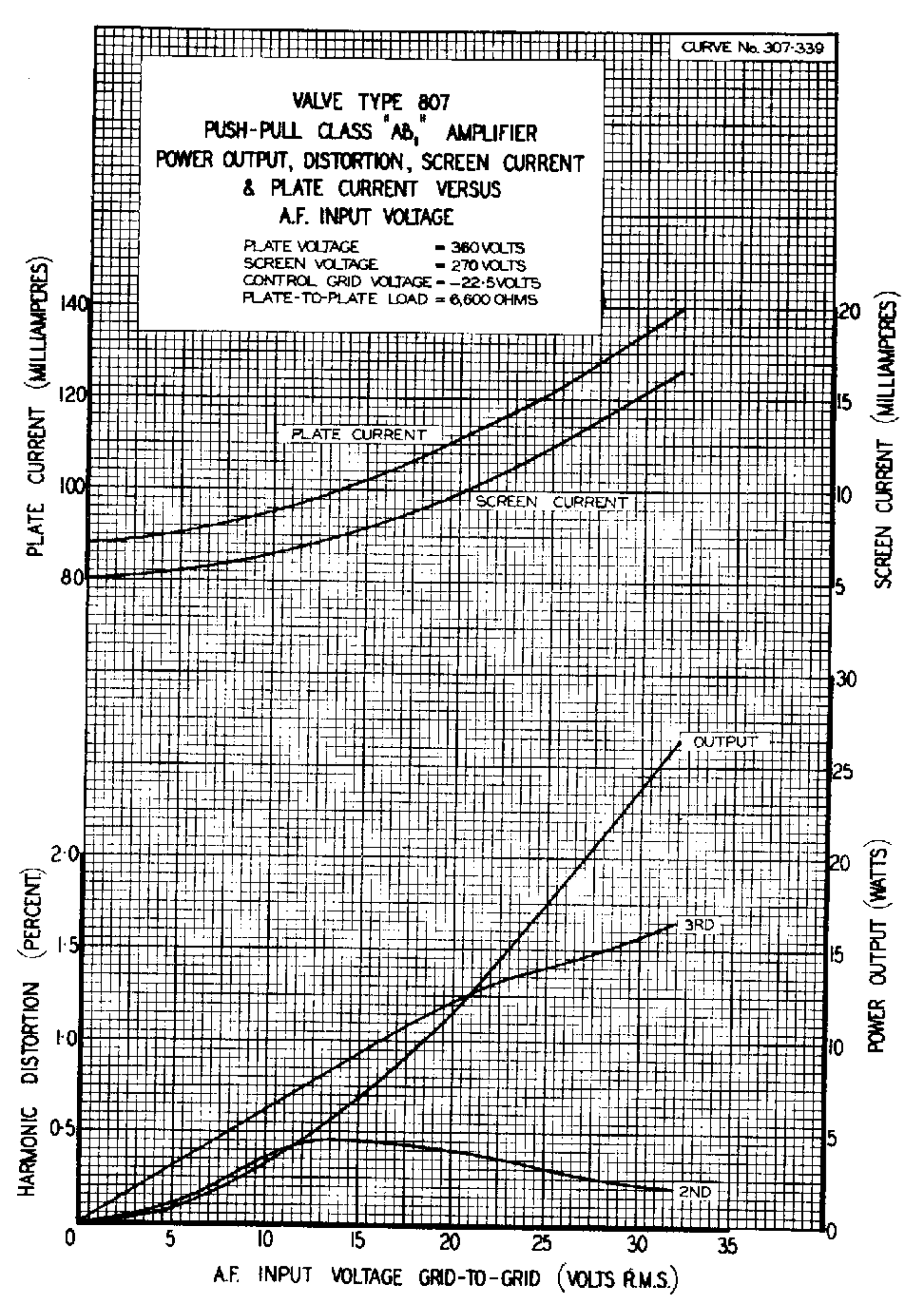

VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT, DISTORTION & PLATE CURRENT
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 325 VOLTS
CONTROL GRID VOLTAGE = -30 VOLTS
PLATE TO PLATE LOAD = 8,000 OHMS
CURVE No. 307·335
PLATE CURRENT
OUTPUT
3RD
2ND
POWER OUTPUT (WATTS)
0
1
2
3
4
5
6
PLATE CURRENT (MILLIAMPERES)
80
90
100
HARMONIC DISTORTION (PERCENT)
0
0·2
0·4
0·6
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
5
10
15
20
25
30
35
40
45
50

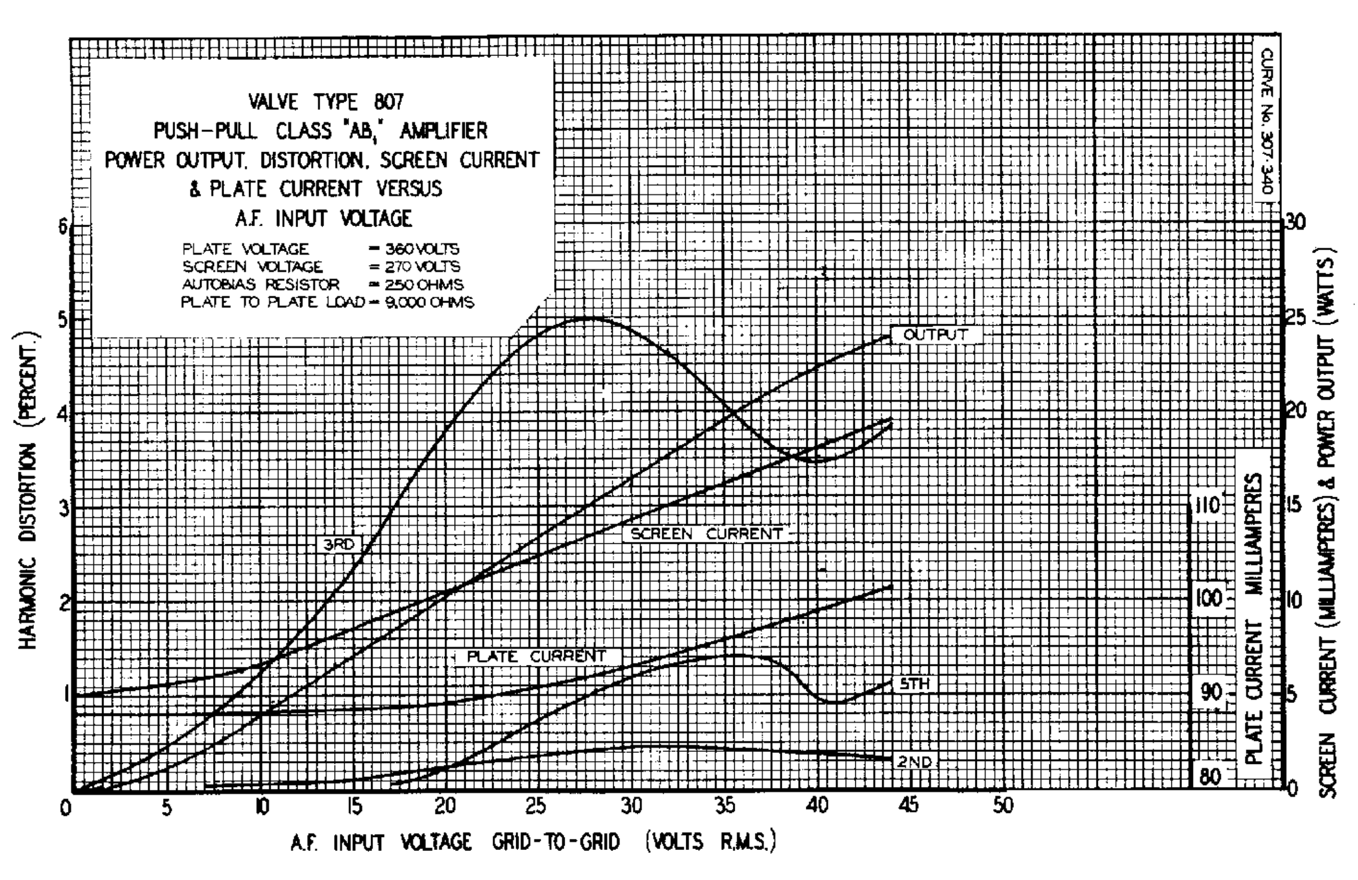

CURVE No. 307-338
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE
PLATE VOLTAGE = 325 VOLTS
AUTOBIAS RESISTOR = 375 OHMS
PLATE CURRENT = 80-84 mA
PLATE-TO-PLATE LOAD = 8,000 OHMS
OUTPUT
3RD
2ND
POWER OUTPUT (WATTS)
0
1
2
3
4
5
6
7
HARMONIC DISTORTION (PERCENT)
0
0·1
0·2
0·3
0·4
0·5
0·6
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
5
10
15
20
25
30
35
40
45
50



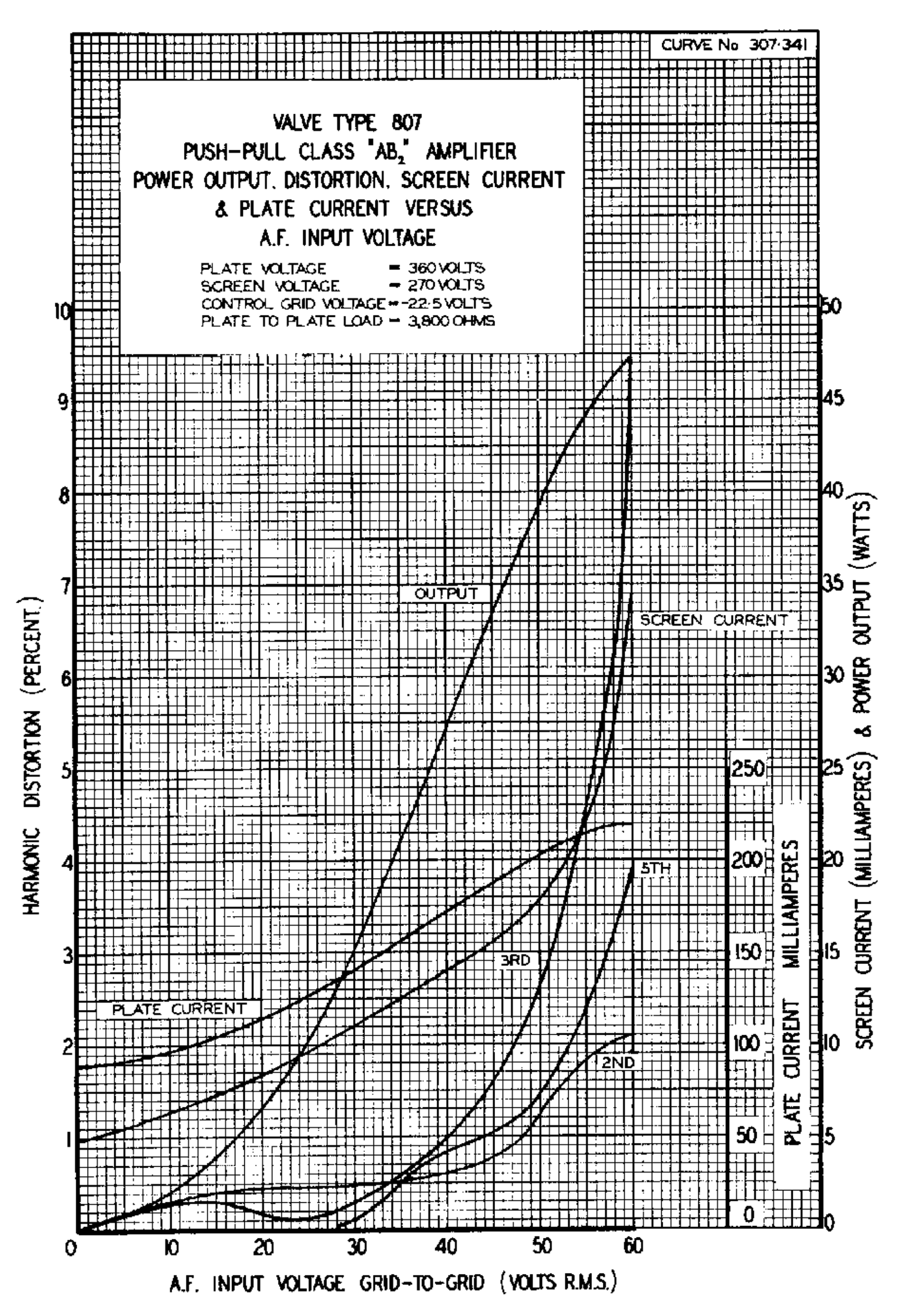
CURVE No. 307·337
VALVE TYPE 807
CLASS "A" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
SCREEN VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = -14 VOLTS
PLATE LOAD = 2,500 OHMS
SCREEN CURRENT
PLATE CURRENT
2ND
OUTPUT
3RD
SCREEN CURRENT (MILLIAMPERES), POWER OUTPUT (WATTS) & HARMONIC DISTORTION (PERCENT)
PLATE CURRENT (MILLIAMPERES)
A.F. INPUT VOLTAGE (VOLTS R.M.S.)
0
2
4
6
8
10
12
1
2
3
4
5
6
7
8
9
10
70
75
80


CURVE No. 307-338
VALVE TYPE 807
CLASS "A" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 250 VOLTS
SCREEN VOLTAGE = 250 VOLTS
AUTOBIAS RESISTOR = 170 OHMS
PLATE LOAD = 2,500 OHMS
SCREEN CURRENT
PLATE CURRENT
OUTPUT
2ND
3RD
SCREEN CURRENT (MILLIAMPERES), POWER OUTPUT (WATTS) & HARMONIC DISTORTION (PERCENT.)
PLATE CURRENT (MILLIAMPERES)
A.F. INPUT VOLTAGE (VOLTS R.M.S.)
0
1
2
3
4
5
6
7
8
9
10
12
14
16
74
76
78
80


CURVE No. 307-339
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 360 VOLTS
SCREEN VOLTAGE = 270 VOLTS
CONTROL GRID VOLTAGE = -22·5 VOLTS
PLATE-TO-PLATE LOAD = 6,600 OHMS
PLATE CURRENT
SCREEN CURRENT
OUTPUT
3RD
2ND
PLATE CURRENT (MILLIAMPERES)
SCREEN CURRENT (MILLIAMPERES)
HARMONIC DISTORTION (PERCENT)
POWER OUTPUT (WATTS)
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
140
120
100
80
2·0
1·5
1·0
0·5
0
5
10
15
20
25
30
35



CURVE No. 307·340
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 360 VOLTS
SCREEN VOLTAGE = 270 VOLTS
AUTOBIAS RESISTOR = 250 OHMS
PLATE TO PLATE LOAD = 9,000 OHMS
OUTPUT
SCREEN CURRENT
PLATE CURRENT
3RD
5TH
2ND
HARMONIC DISTORTION (PERCENT.)
0
1
2
3
4
5
6
0
5
10
15
20
25
30
35
40
45
50
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
PLATE CURRENT MILLIAMPERES
80
90
100
110
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
0
5
10
15
20
25
30


CURVE No 307·341
VALVE TYPE 807
PUSH-PULL CLASS "AB2" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 360 VOLTS
SCREEN VOLTAGE = 270 VOLTS
CONTROL GRID VOLTAGE = -22·5 VOLTS
PLATE TO PLATE LOAD = 3,800 OHMS
OUTPUT
SCREEN CURRENT
PLATE CURRENT
5TH
3RD
2ND
HARMONIC DISTORTION (PERCENT.)
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)
PLATE CURRENT MILLIAMPERES
A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
0
10
20
30
40
50
60
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30
35
40
45
50
0
50
100
150
200
250

MILITARY SPECIFICATION SHEET

ELECTRON TUBES, TRANSMITTING

TYPES 807 AND 1625 1/

The complete requirements for procuring the electron tubes described herein shall consist of this document and the latest issue of MIL-E-1.

This specification is mandatory for use by all Departments and Agencies of the Department of Defense.

DESCRIPTION: Amplifier, beam power. F1 = 60 MHz. F2 = 125 MHz

Outline --- 16-2 (EIA)

Base
- 807 --- A5-11 (low-loss phenolic)
- 1625 --- A7-13 (low-loss phenolic)

Cap --- C1-1

Envelope --- ST16

Cathode --- Coated unipotential

Base connections:

Pin No.	---	1	2	3	4	5	6	7	Cap
Element									
807	---	h	g2	g1	k, g3 (Note 2)	h	---	---	a
1625	---	h	nc	g2	g1	nc	k, g3 (Note 2)	h	a

ABSOLUTE-MAXIMUM RATINGS:

Parameter:	Ef	Eb	Ec1	Ec2	Ib	Ic1	Pg2	Pp	Pi	Ⓒ Ehk	Modulation	Alt
Unit:	V	Vdc	Vdc	Vdc	mAdc	mAdc	W	W	W	v	---	ft
Type 807												
Class B AF:	6.3 ±10%	600	---	300	120	---	3.5	25	60	135	---	10,000
Class B RF:	6.3 ±10%	600	---	300	80	---	2.5	25	37.5	135	---	10,000
Class C Telep:	6.3 ±10%	475	-200	300	83	5	2.5	16.5	40	135	Anode	10,000
Class C Teleg:	6.3 ±10%	600	-200	300	100	5	3.5	25	60	135	---	10,000
TEST CONDITIONS:	6.3	600	-29	300	---	---	---	---	---	---	---	---
Type 1625												
Class B AF:	12.6 ±10%	600	---	300	120	---	3.5	25	60	135	---	10,000
Class B RF:	12.6 ±10%	600	---	300	80	---	2.5	25	37.5	135	---	10,000
Class C Telep:	12.6 ±10%	475	-200	300	83	5	2.5	16.5	40	135	Anode	10,000
Class C Teleg:	12.6 ±10%	600	-200	300	100	5	3.5	25	60	135	---	10,000
TEST CONDITIONS:	12.6 Vdc	600	-29	300	---	---	---	---	---	---	---	---

GENERAL:

Qualification - Required

1/ See note 1

Ⓒ denotes changes

METHOD	REQUIREMENT OR TEST	CONDITIONS	AQL (PERCENT DEFECTIVE)	INSPECTION LEVEL OR CODE	SYMBOL	LIMITS MIN	LIMITS MAX	UNIT
	<u>Qualification inspection</u>							
1236	Power oscillation (2)	Power oscillation (1): F = 60 MHz	---	---	Po	28	---	W
	<u>Quality conformance inspection, part 1</u>		(C)					
1231	Emission	Eb = Ec1 = Ec2 = 50 Vdc (see note 3)	0.65	II	Is	300	---	mAdc
1236	Power oscillation (1)	Ec2 = 200 Vdc: Rg = 10,000 ohms: Ic1 = 6 mAdc: Ib = 100 mAdc: F = 15 MHz	0.65	II	Po	33	---	W
1256	Electrode current (1) (anode)		0.65	II	Ib	24	48	mAdc
1266	Total grid current	See note 3	0.65	II	Ic	---	-4.0	µAdc
(C) 1201	Short and discontinuity detection		0.4	II	---	---	---	---
	<u>Quality conformance inspection, part 2</u>							
1031	Low frequency vibration	Eb = 250 Vdc: Ec2 = 100 Vdc: Ec1 = -10 Vdc: Rp = 2,000 ohms	---	---	Ep	---	500	mVac
1036	Bump	Hammer angle = 20°	---	---	---	---	---	---
1301	Heater current Type 807 Type 1625		 --- ---	 --- ---	 If If	 810 405	 990 495	 mA mA
(C) 1336	Heater-cathode leakage		---	---	Ihk	---	100	µAdc
(C) 1256	Electrode current (2) (anode)	Ec1 = -100 Vdc	---	---	Ib	---	0.5	mAdc
(C) 1256	Electrode current (screen)		---	---	Ic2	0	4.0	mAdc
1266	Primary grid emission Type 807	Eg2 = 175 Vac (approx): Eb = Ec2 = 0: Ec1 = 0 to 6 Vdc: Pg2 = 5 W (see note 4)	---	---	Ic2	---	-750	µAdc
1306	Transconductance Type 1625	Eb = Ec2 = 250 Vdc: Ec1 = -14 Vdc	---	---	Sm	5,100	6,900	µmhos
1236	Internal insulation		---	---	---	---	---	---
1331	Direct-interelectrode capacitance	Shield No. 312 Without shield Without shield	---	---	Cgp Cin Cout	--- 10.0 5.3	0.2 14.0 8.7	pF pF pF
(C) 1216	Base material insulating quality		---	---	---	---	---	---

METHOD	REQUIREMENT OR TEST	CONDITIONS	AQL (PERCENT DEFECTIVE)	INSPECTION LEVEL OR CODE	SYMBOL	LIMITS MIN	LIMITS MAX	UNIT
	Quality conformance inspection, part 2 -Continued							
(C) 1101	Secureness of base, cap, or insert		---	---	---	---	---	---
(C) 1105	Permanence of marking		---	---	---	---	---	---
	Quality conformance inspection, part 3							
---	Life-test provisions	Group B: Ehk - 135 V	---	---	---	---	---	---
---	Life-test end points (500 hours)	Total grid current and	---	---	Ic1	0	-4.0	μAdc
		Power oscillation (1)	---	---	Po	27	---	W

NOTES:

1. Tube type 5933 has been deleted from this tube specification sheet. For replacement purposes use tube type 5933WA, MIL-E-1/652.

2. The beam forming plate lead and the cathode lead shall be individually passed through the glass stem of the tube and shall be electrically connected together only at the base pin.

3. This test to be performed at the conclusion of the holding period.

4. A protective resistor of 15,000 ohms shall be placed in series with the primary emission current meter. Grid No. 2 input power shall be calculated as 2.40 times the product of the rectified current and rectified voltage. Test duration shall be sufficient to obtain a stabilized negative Ic2 value.

Custodians:
Army - EL
Navy - EC
Air Force - 80

Review activities:
Army - EL
Navy -
Air Force - 11, 80
DSA - ES

User activities:
Army - MU, WC
Navy - AS, OS, MC, CG, SH
Air Force - 19

Preparing activity: Navy - EC

Agent: DSA - ES

(Project 5960-2425-52)